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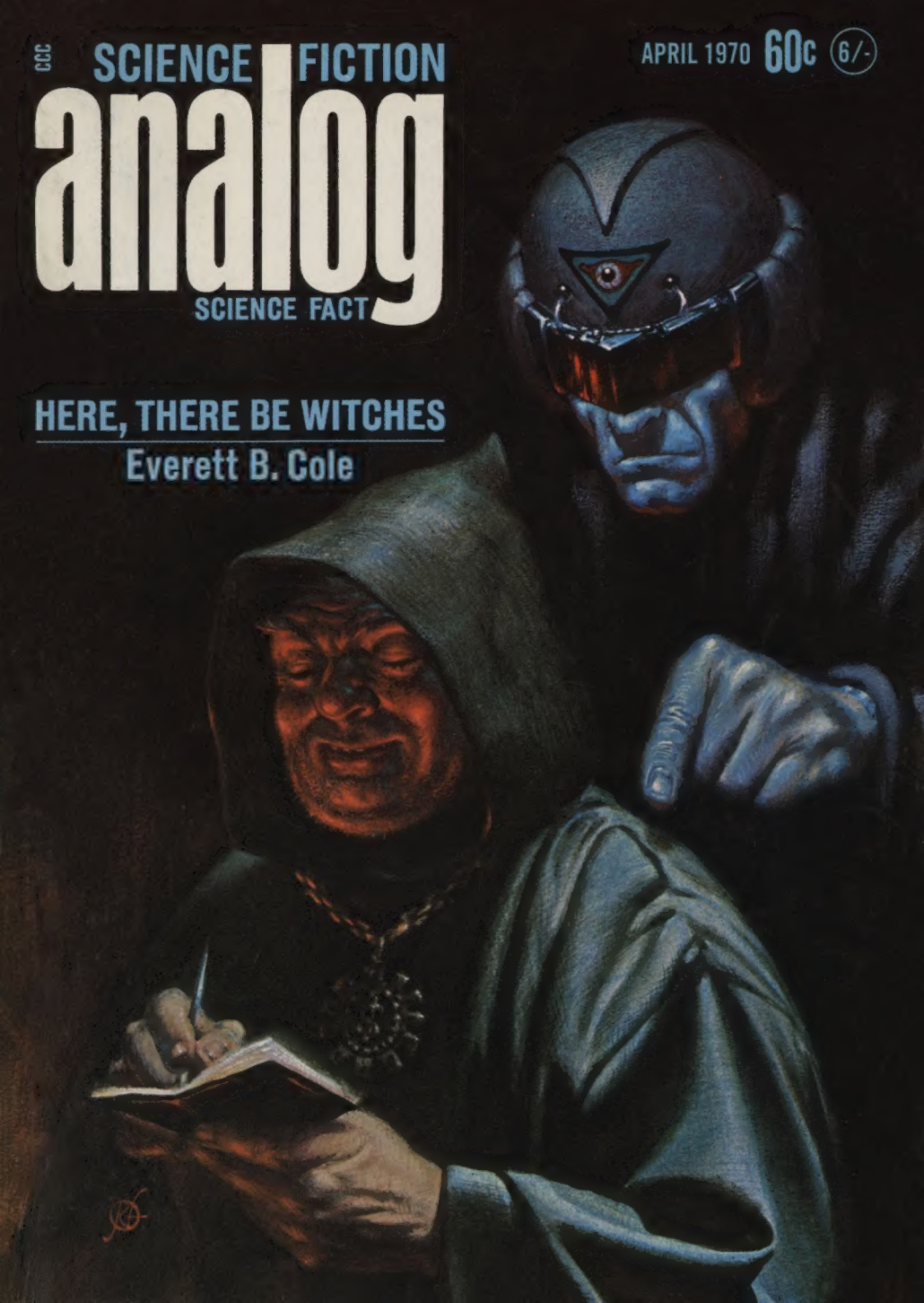
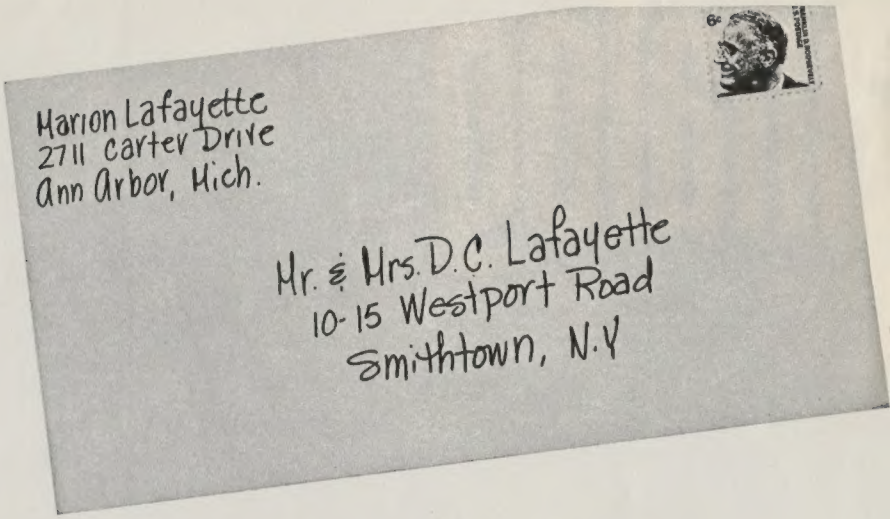
HERE, THERE BE WITCHES

Everett B. Cole





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FILTERED NEWS

An editorial by John W. Campbell

Vice President Spiro Agnew has—as of the end of November—given two speeches attacking the handling of news by the major news media of the United States—TV and the newspapers.

My personal belief is that he's not exactly wrong—but he's got hold of the problem from the wrong end. It's not the editorial level that's filtering the news; the news is not being *censored* in any ordinary sense, nor is it being distorted deliberately, consciously or maliciously by a small, unelected group.

He's not wrong in saying that it is being filtered, and a largely one-sided and unbalanced view is being presented to the American people.

The Founding Fathers were well aware that an informed electorate was the best assurance that a government remains wise, honest, and responsible. The Freedom of the Press was guaranteed to assure that the electorate would be an informed electorate. And there is a reverse side to the guarantees an informed electorate grants—a misinformed electorate guarantees an increasingly bad government. When the electorate gets only one side of the news—or news so filtered that it compels the reader to assume that X is true, because he is not permitted to hear that Y also exists—the electorate may believe it is being informed when, in fact, it is being misled.

Misled *not by its leaders,* but by those relatively nameless ones who do not tell untruths, cannot be accused of perjury, but use the more subtle, harder-to-disprove lie of the half-truth. "Everything I say is the truth and nothing but the truth!" can be the defense of the half-truth liar. Like the Don Juan type who, when asked if he has any children, can half-truthfully

answer, "Oh, I'm not married."

The news media today are not being censored, in any normal meaning of that term; they are free to report things as they see them. But there is, in that apparent freedom, a highly dangerous difficulty, a difficulty that is, in this era, producing in America—and in other nations, too—news media that supply biased reporting, full of half-truths that are not lies, and yet mislead the readers as to the whole truth. And it's being done by men who are honest, sincere, thoughtful, and dedicated to fair reporting!

But while that automatically sounds like a prescription for noble, wise and benevolent action—be it remembered that England's great tyrant-dictator and military autocrat was a man of deepest honesty—a sincere, dedicated, holy man of the greatest good will. Oliver Cromwell was not mean, petty, crooked, nor irresponsible. He believed most sincerely in the highest ideals of Mankind. And the rigid totalitarian state he set up was closely paralleled in modern times only by Hitler's Nazi Germany, so far as its harsh and ruthless pogroms were concerned! Those were sincere, dedicated men of the greatest good will for Mankind who set up and operated the Holy Inquisition.

The intention to be honest, fair, wise, dedicated and fight the good fight does *not* guarantee a good result. The True Believer sees what he believes is true—which makes for extremely dangerous reporting.

Vice President Agnew is right in saying that there is a genuine danger in the lopsided news coverage the news media are giving. But he is quite wrong in attacking the management of the news agencies—the network presidents and the individuals who act not as news-gatherers, but simply as mouthpieces relaying what other men have told them.

The difficulty can best be expressed in terms of the famous motto of the New York *Times*, an idealistic journalistic motto, "All the news that's fit to print."

That motto does, of course, represent the journalistic ideal—and therein is the trap.

Who decides what's "fit" to print? The New York *Times*, in years past, did not consider various spectacular sex murders as meriting much attention; several other New York City papers on the other hand considered them first-class, first-page news. But did not consider that Einstein's new paper on General Relativity merited full publication, although the *Times* did. (Which represented real journalistic workmanship, too, since Einstein's equations ran through the Roman, Greek and Hebrew alphabets for symbols, and had started in on a few somewhat esoteric alphabets for which normal typographers do not have type. This led

to problems where the symbol had to be described on translantic cables, a feat approaching the legendary "describe a spiral staircase without using your hands.")

The trouble with "news that's fit to print" is, simply, that genuinely sincere, idealistic, dedicated and honest men have distinctly different ideas of what is Truth and Fact and Fit to Print. What constitutes honest, unbiased reporting? Truth —as every philosopher of the ages has agreed—is *not* a simple thing, nor is it merely a recitation of facts.

Consider this: "I was present, and I saw John Blank come running out of the door, with a look of terror on his face, screaming 'Don't shoot—don't shoot!' and I saw Bill Blow follow him out, and shoot him in the back four times. Bill Blow was furiously angry, and continued shooting even after John Blank had fallen to the ground."

Given these facts there is a clear implication of murder, a brutal, unjustified killing.

However, what the eyewitness did not see was what had happened to Bill Blow's wife and daughter inside the house; he wasn't aware of their disfigured bodies.

Facts are merely data; Truth has the much broader implication of meaning and relationship.

If someone develops a true mechanical memories-reader, an ultra-super and infallible lie detector, it will be useful in finding Truth—but it will not give us the Truth of any experience.

Any human being acts on *what he believes the Truth to be;* only an omniscient Deity can act on what the Truth *is.* Therefore, the most sincere, honest and dedicated of men must always act on something other than the Truth.

Consider for example, two reporters of a particular episode. Reporter A is a long-time professional sports trainer; he's worked with football players, boxers, gymnasts, et cetera, for years. He observes a melee in which sticks, rocks and fists fly fairly freely, and reports: "The boys mixed it up pretty good for about fifteen minutes. They blew off a lot of steam, but nobody was injured."

The other observer of the scene is a university mathematician who, because of a childhood terror experience, quite literally tends to faint at the sight of blood. His report comes out: "There was a horrible fight between about fifty men trying to kill each other with clubs, rocks and bare hands. Over half of them were torn and badly injured, bleeding terribly."

Both reports are honest, sincere, factual reports of disinterested witnesses. Except that each has, inescapably, brought his own experiences and belief patterns to bear on the meaning of facts observed. The professional sports trainer knows from long experience that a few skin cuts aren't *injuries*: they'll

be gone in a matter of a few days. What he means by "injuries" implies dislocated joints, compound fractures, or ruptured organs—something requiring surgical intervention or major therapy. A torn scalp that requires nothing but a few stitches and some adhesive tape isn't what *he* considers an "injury". That sort of thing he sees routinely in many sports, and the athlete involved considers it slightly more annoying than a bruise, but nothing worth bothering with much. To the trainer, a cut that leaks a few tablespoonsful of blood is messy and annoying—but inasmuch as any healthy, vigorous man can spare a full pint of blood, he's not impressed by such tiny leaks.

The mathematician, having a psychological hang-up on the matter of bleeding, is impressed. To him, it *is* "terrible".

So . . . which reporter has given a "true" report of the event?

As any clinical psychologist can tell you—and demonstrate readily—a human being sees what he expects to see, and will completely fail to see something immediately, and conspicuously in front of him if that be something he loathes, dreads, or resists awareness of. How much evidence does it take to make a doting parent acknowledge that dear Junior is a lying, sneaking, vicious little vandal? And how much evidence, on the other hand, does it take to make the neighbors who've decided Junior is a lying, sneaking, vicious little vandal become aware that it isn't young Master Green who's the vandal—but their own butter-won't-melt-in-his-mouth bratling?

The essential point that must be recognized is simply that *no reporter can ever be trusted to be objective.* They are, necessarily, human beings. Moreover, they are generally sincerely dedicated human beings, with considerable social conscience—which makes the worst kind of non-objective observers! Because such sincere and conscientious men are dedicated to *something*—some concept of What Should Be. The dedication is honest—but any honest dedication, like a parent's dedication to his child, acts to filter observations. Item A, which fits the ideal-theory, is Evidence and Proof; item B, which tends to disprove the ideal-theory, is a happenstance, a misunderstood coincidence, or a false report, because *that* man would never do such a thing. Just as a parent knows his own beloved bratling *couldn't* be the one who deliberately set fire to the neighbors' new car.

Now conscious bias and deliberate suppression of the news is one thing; it's deliberate and plotted fraud on the public.

But what of the unconscious suppression of news contrary to the sincere and honest beliefs of a reporter who genuinely seeks to re-

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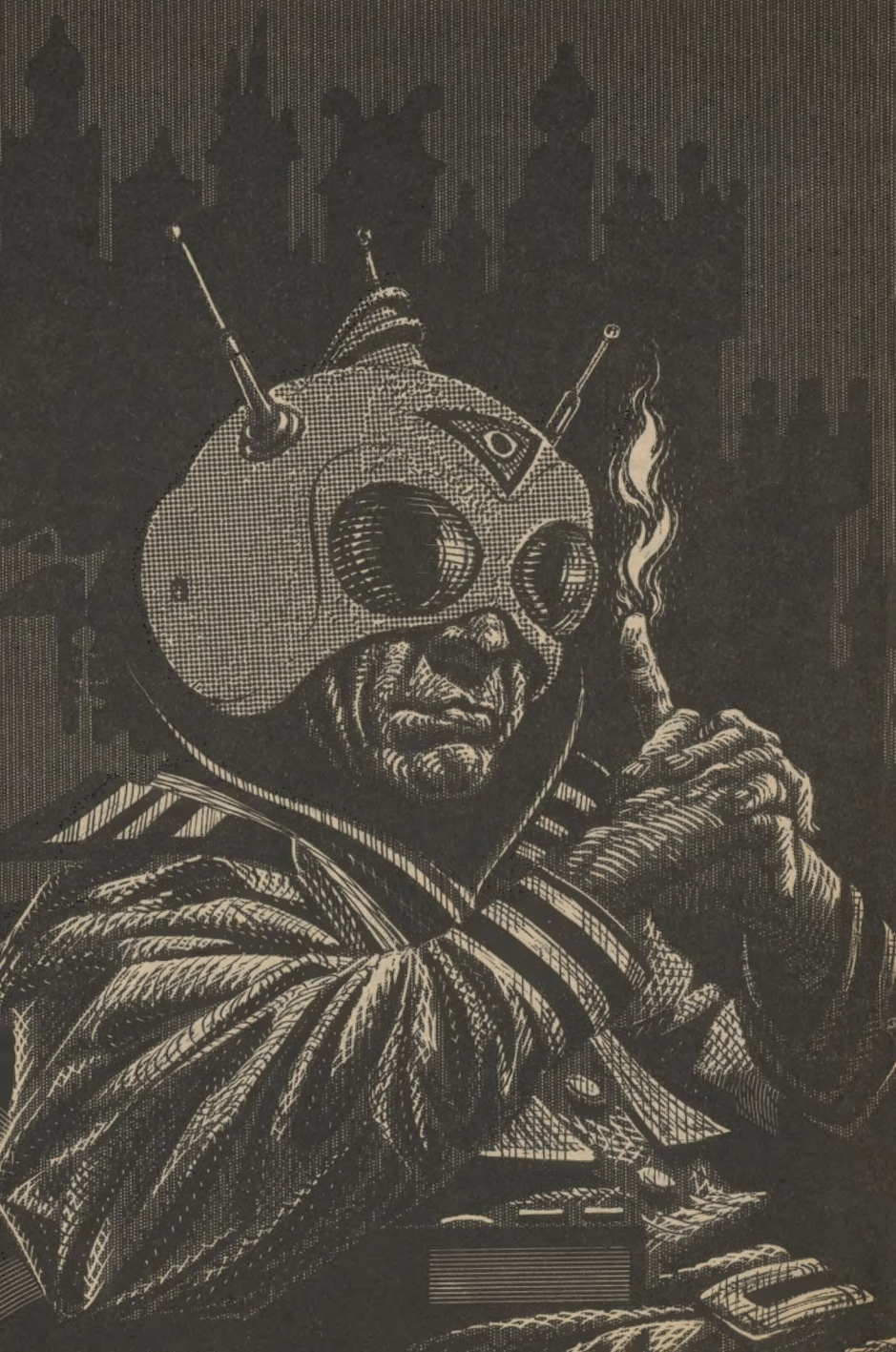

HERE,
THERE BE
WITCHES

Supernatural forces are forces that are superior to your knowledge of nature. So what happens to a greedy, vicious witch-hunter who encounters a supernatural technician . . .?

EVERETT B. COLE

Illustrated by Kelly Freas

Commander Kar Walzen looked up from his desk as Hal Carlsen came in.

"I'm told you had some trouble with my Operations Officer."

Carlsen shook his head. "No real trouble, sir. He wanted to schedule us for a C.A. assignment. I explained to him that I had an assignment that would take some time. Suggested that he pick one of the regular Criminal Apprehension teams to handle it."

The Sector Criminal Apprehension Officer frowned. "You refused an assignment, then. Right?"

"No, sir. I simply explained to Captain Koren that my detachment would be tied up for a while. His assignment would be delayed if he waited for us to get back."

"That constitutes a refusal in my book. Now, let's get this clear right at the start. You and your people are not a bunch of prima donnas. You've turned in some good assignments, but you were sent to C.A. to work, not to go hareing off any time you happened to feel like it. Is that clear?"

"Sir, we have a Philosophical Corps assignment. It came in through Sector this morning. According to our orders, it takes priority."

"Nonsense! You're assigned to me." Walzen exhaled loudly and regarded the junior officer angrily.

Carlsen reached into his tunic and took out a folded sheaf of papers. He pulled one off and extended it. "You should have received a copy of this, sir. I gave one to the captain."

Walzen grabbed the sheet, scanning it. Finally, he threw it down and reached for his communicator switch.

"I'll get this rescinded and set those people straight once and for all. Now you get back to Operations. Get your instructions from Captain Koren. I want to see a completed operational plan on this desk not later than tomorrow morning." He rapped at the communicator switch.

"You may go."

Carlsen hesitated for a few seconds, then went out to the outer office and sat down. The clerk looked at him curiously.

"You need something, sir?"

Carlsen shook his head. "No. The commander'll be wanting to see me in a few minutes. No point in making him wait."

The clerk looked doubtful. "Yes, sir."

Carlsen sat back and relaxed. A low murmur came from the inner office. Walzen's voice raised almost to a shout.

"I tell you, I can't perform my mission if my people are going to be constantly pulled out of service for some errand." The murmur went on. Carlsen waited.

There was a harsh, grating sound and Walzen's door slammed open. The commander strode out, glaring at his clerk.

"Get Mr. Carlsen back in here on the double."

He turned, then saw Carlsen.

"Oh. You're still here, eh? Come inside."

The commander slammed down in his chair and looked up angrily.

"Headquarters tells me that assignment of yours has priority. Now I won't go against definite orders. Never have, and never will. So you can go ahead this time. But let me tell you this: Next time you sneak over my head to the front office, I'm going to see to it that your career in the Stellar Guard is short, brutal, and nasty. Is that clear?"

Carlsen nodded, waiting.

"How long is this little junket of yours going to take?"

"It's hard to say, sir. We've got the Exploratory team's field notes, but we've no idea what sort of detailed situations we may run into."

Walzen snorted. "Bunch of amateurs! I'll give you a week. Then I'll expect you to report back for duty. And I'm going to tell you once again. Don't you ever again try going over my head so you can take one of these little vacations. Understand?"

Hal Carlsen looked into the viewsphere as his scouter floated toward distant foothills. He examined the valley below, occasionally changing magnification as features of interest caught his attention.

In the remote past, water running from newly formed mountains had raged across the land, cutting a path for itself as it raced toward the sea. Now, it had cut its channel, shifted course time after time, and at last had come to be a peaceful, elderly stream, mean-

dering lazily at the center of a wide valley.

Occasional cliffs along the ancient river course marked water lines of old. But in most places, erosion had caused the cliffs to become sloping bluffs which rose to a tableland above.

Even the mountains had weathered, to become tree-clad hills and their sediment had paved the water-carved valley. Hedgerows divided the fertile land into fields and pastures. Tall trees grew on the river bank, their roots holding the soil to inhibit the river from further changes in course. Clusters of buildings dotted the valley floor and narrow roads connected them to one another and to a main highway which roughly bisected the valley's width.

Carlsen examined a craggy cliff speculatively, then shrugged. *Could have been times when the sea came up here. Might be what's left of a gulf, at that,* he told himself. *But right now, it's people I'm interested in, not historical geology.*

A winding road led up the face of the cliff to a castle gate. Carlsen looked at it thoughtfully, then glanced at his range markers. It was just about at his own altitude and fairly close. He reached for the manual override, then shook his head. Just ahead was a large town at the head of the valley. He could look into the castle later.

Beast-drawn carts were making their jolting way along the road below and as the ship passed over one of them, Carlsen tapped the controls, slowing to the speed of the cart. He increased magnification and studied the man and his draft animal.

The driver was a youngish man, dressed in a sort of faded yellow smock and wide, short pantaloons. Thongs wrapped around his ankles supported a boardlike sole and gave his feet some protection. He was obviously humanoid and Carlsen could see no significant difference between him and the basic homo sapiens type. He nodded.

Just about have to be, he told himself. *It's a geomorphic planet. Who else would you expect to find?* He turned his attention to the draft beast.

The creature was a slate gray. Carlsen estimated its mass at nearly a thousand kilograms. The body was relatively short and fat, supported on blocky legs. The neck was long, the muzzle shovellike. Carlsen tilted his head. Might be a herbivorous reptile? He increased magnification, then shook his head. No, there was scanty, coarse body hair. Lines ran from the cart to a system of straps at the animal's shoulders. The beast plodded gracelessly, occasionally stretching its long neck aside to tear a bit of herbage from the growth at the roadside.

Carlsen turned his attention back to the driver, then reached

out and focused his psionic amplifier. For a few seconds, he sat in concentration, then he abruptly snapped a switch.

Gloch! None of my business. That's no kind of research.

The driver moved uneasily, then looked upward. He searched the sky then shook his head uncertainly and returned his attention to his beast and the rutted road before him.

Carlsen's hand darted out, bringing the ship down until it hovered close over the cart.

Interesting, he murmured. *This guy knows there's something up here.* He glanced at a cluster of meters and shook his head.

No trace of radiation shield leakage and at this speed there's not a chance of concussion. He examined the man curiously. *He's got to be a sensitive,* he decided. *I think I'll just record this guy for a while.*

Again, the driver squirmed uneasily and looked up and behind him. For a moment, he faced directly at Carlsen, who flipped a casual salute.

Hi, chum, he laughed. *If you can see anything here, you've got something new in the way of eyesight. But how about looking the other way for a while? I don't want you to get curious about insects that pop out of nowhere. And I don't want to use a full shielded spyeye. Haven't got an oversupply of those.* His hand poised over a switch.

The driver shook his head again, rubbed a hand over his eyes, and finally faced forward, muttering to himself.

Carlsen flicked up the psionic amplification.

Wysrin Kanlor, the man was saying, *you're as crazy as that Mord claims. There's got to be something up there. Something big. But all I can see is sky.*

Carlsen took his hand from the switch and looked thoughtfully at the man. At last, he opened a wall cabinet, took out a stubby cylinder, and opened its access port. For a few minutes, he busied himself in making adjustments, then he snapped the port shut. The cylinder faded from view and he opened a drawer under the console and shoved the invisible object inside. He swung around and watched a small viewscreen as the instrument approached, hovered before the driver, then focused.

Locked on, Carlsen said. *I'd say it's worth it. If I don't get anything else, I'll get a good line on language and dialect from the way he talks to himself.* He lifted ship, pointed its nose toward the town, and switched to the auto pilot.

For a while, he studied the details of narrow, winding streets as the ship slowly circled. Then he eased down over the central plaza and set the auto pilot to hold position.

At one side of the open space, a blackened area surrounded a thick,

charred post. Several short lengths of chain, terminated by heavy cuffs, dangled from ringbolts. Nearby, a cart bearing a new post had pulled up and men were unloading tools. Carlsen frowned.

Now just what have we here? he muttered. He snapped on the psionics and focused on one of the workmen.

For an instant, there was a picture of flames rising about the post. A human figure twisted and moved frantically. There was a mixed sense of vicious pleasure, deep guilt, and suppressed skepticism. Then the man's thoughts became crisply businesslike. Vocalized thought came through clearly.

"All right, you two," he ordered. "Let's be at it. This stick's got to be set sometime today. Man says they're going to be needing it."

The workers went about their duties mechanically, paying no attention to their surroundings and showing no suspicion of awareness of the watcher above them. Carlsen frowned in distaste.

Public executions, he decided. *Pretty savage about it, too.* He examined the buildings surrounding the plaza, then flicked at a series of switches. A swarm of beetlelike objects appeared, then swung about the plaza, dispersed, and disappeared through openings in the various buildings. Carlsen rotated a selector, examining the viewsphere. Finally, he stopped to study an interior view. The telltale was high on the wall.

The high-ceilinged room was almost square. Rough stone walls were partly hidden by draperies. Overhead, rough rafters formed a grid in the plaster of the ceiling. At one end of the room, on a raised part of the stone flooring, a group of men sat behind a heavy table. Carlsen looked at them curiously.

Two were enveloped in drab, gray robes whose texture belied their apparent austerity. Both wore ornate rings and one had a heavily jeweled amulet.

Bet there's some mighty nice tailoring under those robes, Carlsen told himself. He looked at the other three men.

They were richly dressed, their clothing bearing small resemblance in either cut or material to the coarse cloth worn by the farmer and the workmen. They were leaning forward, listening attentively to the robed man with the jeweled amulet.

The telltale was too small to handle psionic overtones. For a time, Carlsen listened to the man's harangue, then he turned and got out another stubby cylinder.

I need to know what this fellow's thinking about, he told himself. *What he's saying may make sense to those people, but it's so far from reality, I can't get much out of it.*

He locked the spyeye to the telltale, launched it, and waited till it was in position. The beetle was clinging to a fold in one of the drapes.

Better anchor this thing to the ceiling, I'd say. No one'll stumble over it there. He snapped switches and sat watching the presentation.

"I get it," he finally said aloud, "but I don't get the sense. Demons! Sorcery, yet! And this bum's actually more than half convincing these guys, even though he doesn't really believe much of it himself.'" He leaned back.

"Well, maybe I'll get something to collate with this from the rest of the team."

He grabbed a lever switch and held it back.

"Cisner?"

"Here, Chief." A tanned face appeared in one of the screens.

"Got anything yet?"

"Yes, sir. I've bugged a sort of palace down this way. Got a spyeye or two around town, too." The man shrugged. "Chief, some of these people are nothing but psycho. And the local archduke is the worst of the bunch. He's been so badly suckered, he eats . . . Chief, you'll have to see the whole run to believe it."

Carlsen nodded. "I think I know what you mean. Demons. Sorcery. Witches who prey on their neighbors?"

"That's it, sir. Couple of these vultures don't believe the guff they're selling, but a couple more do. They're all pushing it, though. People? Some of 'em swallow it whole, some of 'em aren't so sure and a few of them think it's a bunch of bunk. But no one's got the nerve to ask foolish questions."

"Well, get full coverage. I think we'll have to do something about this. Out." Carlsen hesitated, then pushed the switch again.

"Waler?"

Another face appeared.

"I've caught a kind of university, Chief. Lecturer was giving them the low-down on demonology." Waler grinned lopsidedly. "This guy's really sold. He's even had wild dreams of his own. He's got some sort of intestinal parasite. Pretty toxic and he's subject to delirious nightmares.'" He frowned.

"He's a good talker, but some of his students still aren't sure. They're just wondering how they can learn all the patter and get by their examinations."

"Oh, me! Every culture needs leaders like that! Any of them psionically sensitive?"

"Yeah. Several of 'em. They're the skeptics."

"Makes sense. Look, Waler, see if you can get spyeyes in some of the other lecture rooms. Try to psi bug a few student hangouts, too."

"Will do, sir. Oh, they don't have lecture rooms. These profs do their teaching at their homes, most

of them. Few use rooms in some tavern."

"So bug their homes and the taverns. Got enough eyes?"'

"Couple dozen."

"Should do it. Incidentally, I've picked up some of that same stuff here in Varsana. There's a theocratic Chief Examiner named pen Qatorn. He hasn't been here too long, but he's got the locals scared to death and he's holding trials. Well, we'll see what else we get. Then we can figure out what we have to do, if anything. Out."

Wysrin Kanlor abruptly reined up his mount and sat staring at a patch of wide leaves, sickly yellow against the deep green of the field.

Lizard weed, he growled. *I knew I should have checked up here before.* He looked at the patch, estimating its size, then headed his beast back to the barn.

It'll take a while to burn that patch out, he mused. *It'll be no town fair for me today, or maybe tomorrow, either.* He gathered tools, hitched the *garn* to a water wagon, and drove back.

The weeds burned furiously at first, then became a mass of smoldering embers. A thick, yellow column of smoke rose into the still air, spread, then drifted lazily away. Kanlor leaned on his shovel, watching. There had been a few bad moments when the drenching he had given the grass had failed and the blaze had threatened to leap out into the pasture, but fast work with the shovel had prevented disaster. Fortunately, the weeds hadn't reached maturity, so no flaming seeds had sprung out. And he'd seen no trace of the vicious *yarlnu* lizards. He looked back at his herd, which had drifted away from the blaze.

Well, none of them are on the ground. I guess the patch wasn't ripe enough for 'em to try eating it. He moved his shoulders uneasily, then waved a hand by his face. For a few days past, something had been nearby—something that kept watching him closely. But he had never been able to see—He looked about, then up into the clear sky. There was nothing. He shrugged, then looked across the fields at another column of smoke. Black mixed with the yellow.

Delon Mord's place. Looks as though he had to burn, too. He studied the smoke column critically. *It's spread and he's got a grass fire.* He looked at the glowing embers behind him, then busied himself in putting them out.

Finally, he drove the water wagon away from a black mass of mud and lifted his saddle from it.

It would be well to ride over and see if Mord needed help. In this dry season, a grass fire out of control could spread and destroy several farms. He saddled the *garn* and swung up. In fact, given a wind, the whole plateau could become a sea of flame.

By the time Kanlor got to Mord's property, several other farmers had arrived. The fire was blazing across a pasture and flames were licking at the trees on a hedgerow. Men were filling buckets and passing them to wet down the foliage. A few men were hurriedly throwing dirt on advancing flames. Kanlor grabbed his shovel from a sadddlebag and joined them.

Delon Mord had been rushing about, shouting directions at the fire fighters. He dashed up to Kanlor and seized his arm.

"Never mind that," he shouted. "There's plenty of men here. Go over and help those fellows on the buckets. Those are valuable trees."

Kanlor shrugged him off. "Why don't you help them, then? An overseer's just what we don't need right now. It's your fire, so why not help put it out?"

Mord backed away. "Gotta be somebody takes charge."

Kanlor threw another shovelful on the flames before him. "Well, take charge somewhere else and quit pestering me. I'm busy."

Mord looked angrily at him, started to speak, then dashed away to scream advice at the bucket brigade.

At last, the fire was contained and burned itself out. A pasture had been burned out completely and most of an adjoining field was a waste of smoking ash, but the danger of widespread fire was over. Men put away their tools and gathered in groups. One bent down to crumble soil between his fingers.

"Dry," he commented. "All the farms are drying out this season. Else we get some rain, we'll have thin crops this year. And I hate to think of burning out any more weed patches." He looked at Kanlor. "You don't seem to be having any trouble, though. Your place is green as in a good year."

Kanlor nodded. "It's those wells of mine," he said. "I run water on my fields when the rains fail."

The other shrugged. "Yeah, sure. Nice for you, but who else has all that water to spare?"

"You could dig more wells."

"Oh, to be sure. I've nothing but time. And who's to do my regular farm work while I spend my days heaving dirt?"

"My father and I did it," Kanlor said quietly, "several years ago."

"Yeah." The man turned away. "That was several years back. It's right now I've a family to feed." He kicked at the ground. "Besides, how am I to know I'll have your luck and hit water every time I dig?"

Kanlor watched the man walk away. *We didn't,* he remembered. *There're quite a few dry holes we filled in. And it's precious little time we spent in the village, too.* He walked toward his *garn,* then turned as he heard Mord's loud voice.

"It's just not fair," the man was

saying. "I come out to the pasture day after day and there's nothing amiss. Then this morning, there's this big weed patch. Bunch of lizards in it, too." He waved an arm. "Look, bull's dead of a lizard bite. Two cows all bloated up from eating the filthy leaves, I'll probably lose them, too. And then this fire runs wild. How's a man to . . ."

Kanlor turned away and climbed into his saddle. He looked back at the group wearily. It took time, he knew, for lizard weed to grow. And it took more time for the poisonous *yarlnu* to find a patch and nest in it. He looked back at the scanty stand of grain in what was left of Mord's field. The man's voice carried to him.

"I tell you, it's black sorcery. Witchcraft, that's what it is—a spell on this land of mine."

Kanlor rapped his heels into the *garn's* side. *Of course,* he said to himself. *Sorcery! Evil spells! This past year, there's more and more talk of it. No man really believes the tales till he needs an alibi. When a man lets his fields go, spends his time chasing about the village, goes to every fair down at Varsana, then it's a black spell that causes his farm to go down.* He turned his face toward his own holdings.

Moren pen Qatorn, Chief Examiner for the Duchy of Varsan, leaned forward and cupped his chin in his hands.

"And you say this man has cast repeated spells in your neighborhood?"

Delon Mord looked up at him eagerly. "Yes, my lord. Why only a few days ago, he caused a large patch of lizard weed to grow in my pasture overnight. And somehow, by a black spell, he brought *yarlnu* lizards to infest it." He drew his mouth into a downward curve and spread his hands.

"My cattle were poisoned and one bitten. They died, to my great loss."

"And you say it was this"—pen Qatorn glanced at his secretary's notes—"Wysrin Kanlor who caused this misfortune to you?"

Mord nodded eagerly. "Oh, to be sure, sir. Soon after I started burning the patch off, Kanlor made as if to burn weed on his own property. It was right after that when my fire blazed up and fired the whole field." He peered at the Examiner cunningly.

"They say this is the way the sorcerers work. They take something like that which they would destroy, and—"

Pen Qatorn sighed impatiently. "Yes, yes. We are quite familiar with the workings of black magic. We know about these hopelessly damned sorcerers, and with the demons who are their masters." He looked down sternly.

"This, then, is your story? To be sure, you weren't a bit remiss in the husbandry of your fields? Per-

haps you could have been a bit careless in guarding that your flames should not spread?"

"Oh no, sir!" Mord shook his head. "I am careful to look over my fields daily, and to do that which is needful. There was no weed before that morning."

"I see." Pen Qatorn smiled sardonically. "And this, of course, is the only proof you have to show Kanlor's sorcery?"

"Oh no, sir. There is yet more. All this year, my fields and my neighbors' fields have been dry and the crops scant. Only Kanlor's fields remain rich on the whole plateau. His crops are good and his cattle fat. Thus, he will command a high price for his produce while the rest of us grow poor."

"Ah, yes. This may well merit investigation. And you, I believe, are asking just compensation for these losses you claim were caused by the man's sorcery?"

"Yes, my lord." Mord nodded eagerly. "These spells I tell you of have caused me grievous loss."

"I understand. Well, we shall see." Pen Qatorn raised his head and nodded portentiously. "You may go for now. Perhaps we may call upon you later for further evidence." He waved a hand in dismissal, then turned to his secretary.

"What about this man Kanlor?" he asked in a low voice. "Have you anything on him?"

The secretary nodded. "Information is at hand, my lord. Our original survey showed this might be a man to look up." He smiled and flipped a paper from the stack before him.

"Kanlor has five fields and a pasture, not far from the duke's High Keep. His crops have been good for several seasons back. Man's unmarried and lives alone." The man paused, examining the sheet.

"The duke would pay well for those fields, sir. Kanlor has good wells on them—the only really good wells for several farms around. Oh, yes, there's another thing. He's literate. Dropped from the university when his parents died."

"I see. A fit subject for investigation, then. Tell me, is the man well liked in his village?"

The secretary shook his head. "He lives on his farm. Most of his neighbors seem to be a bit envious of him. No one but this Mord has actually made any accusation, but it's obvious that few tears would be shed if misfortune overtook Kanlor."

"Interesting. And what about Mord?"

"Slovenly farmer, sir. Neglects his fields, though he does manage to scratch out a living and pay his bills. Frequents the tavern and spends a lot of time at the fairs. He lives in the village."

"Married?"

The secretary tilted his head. "Yes, and he has a pair of scrawny

children as well. But the man has a certain popularity. He's no brawler and he has a ready wit. The villagers are tolerant of him and the tavern crowd follows his lead."

The Chief Examiner got to his feet. "I find that this information against the man Kanlor has merit," he said loudly. "We shall pursue an inquiry and bring him before this tribunal shortly." He looked at the local judges, who had moved a bit apart.

"Subject, of course, to any comments you gentlemen might have," he added.

The three men looked uneasily at each other, then turned to face the Chief Examiner.

"We are of the same opinion as your lordship," one said.

Pen Qatorn nodded curtly. "Very well, gentlemen, we shall meet tomorrow after lunch to consider any further information that may come to light. We may, perhaps, question the man Kanlor at that time." He threw a stern glance at the guardsmen who flanked the judicial table.

"Surely, we shall question the man no later than the second day." He rose and strode from the room.

The secretary followed pen Qatorn to a small room, then closed the door and turned to his chief.

"How about this Mord?" he asked. "He's asking compensation."

Pen Qatorn smiled. "And for a long list of claims, I have no doubt. Oh, I think we can allow him a bit for his losses," he decided. "And you might do a little inquiring as to the value of his holdings." He pursed his lips.

"You know, it's a serious crime to make false claim. Too, this informant as been associated with the suspect Kanlor for some time and he shows a certain knowledge of magic himself. It might be well to inquire closely into his activities."

The secretary nodded, then backed away and went through the door. Outside, he shook his head, smiling.

Old fox, he said to himself. *He never misses a thing. Going or coming, he's got them.* He fingered one of his gold rings as he went through an archway, to pace across a small courtyard.

An inconspicuous brown beetle had been perched on a curtain. It flew silently to him and concealed itself in a fold of his clothing.

For a time, he was no more than a free mind, floating in a shapeless void with neither identity nor feeling. Then there was pain. At first, a tiny, hesitant ache insinuated itself. Then it grew to become a throbbing flood of agony. He tried to move a hand, but something held it behind him and the effort made the blinding throb become more acute. He breathed deeply and red flames stabbed at chest and side.

A flood of evil-smelling water poured over him and he jerked his head back. His eyes opened. Now, he remembered. He was Wysrin Kanlor. He had been in a field when guardsmen had come for him, and dragged him from his *garn*. He could remember no words, but there had been kicks and blows, then nothingness.

Dazedly, he looked about at vaguely seen rafters, then at a huge, fat man who towered over him and finally reached down to drag him to his feet.

"Come along, witch," the man ordered. "The Examiner, pen Qatorn, would have words with you." He jerked on a chain and Kanlor's head throbbed as a leash pulled at his neck. He stumbled after his captor.

They went through an arch, then turned. Kanlor's eyesight was clearing and he could see men in somber robes who sat at a table above him. The man in the middle spoke.

"'Your name is Wysrin Kanlor. Is this true?"

"Yes. But why—"

"Silence! I shall ask the questions. You have but to answer—and truthfully."

The big man slashed the back of his hand across Kanlor's face.

"And address the Examiner as 'his lordship,' " he ordered.

Kanlor swayed dizzily, then recovered his balance.

The Examiner continued. "And for how long have you been delving into black sorcery?"

Kanlor's eyes widened. "But I—"

Again the hard hand slammed at his face.

"'Answer. Don't try to evade his lordship's questions."

"I ask you again, Wysrin Kanlor," the Examiner said sternly, "how long have you been a witch?"

"Your lordship, I have never been a witch."

The Examiner frowned. "The man is reluctant," he commented. "He answers, but his answers mean nothing. He has yet to learn the value of truth. Sir Executioner, perhaps you might instruct him?"

The large man nodded. "Thumbscrews," he ordered.

There was a movement behind Kanlor, then he felt something being clamped to his right thumb. Pressure was swiftly exerted and raging pain shot up his arm. He barely choked back a scream.

Pen Qatorn looked at him coldly. "You have been using black sorcery to the damage of your neighbors. For how long have you done this? Five years? Six?"

Kanlor stared at him silently. Pen Qatorn watched for a moment, then continued.

"We shall come back to that again. Why did you become a witch?"

There was a jerk at Kanlor's hand and the pressure on his thumb increased. A clamp was

placed on his other thumb and tightened. His mouth flew open in shocked disbelief. This, he told himself, simply was not happening. It was a horrible dream. He . . .

The pressure was abruptly increased and a scream started to well from his throat. He clamped his lips fiercely shut. It was no dream and nothing he could say would help. He stared silently at the Examiner. Pen Qatorn frowned.

"How did you become a witch? What was done at that time? Who is your evil master?" He paused.

More clamps were fastened to Kanlor's fingers and tightened. His hands throbbed and the muscles of his arms tightened and cramped.

"Well, will you answer? How long have you been a witch?"

Kanlor drew a shuddering breath, then closed his eyes. Pen Qatorn glared at him, then turned to his secretary.

"Let it be noted that the man is taciturn," he remarked. He looked back at Kanlor.

"Oh, have no doubt. You shall answer these questions," he said coldly. "These and more. It will but take time." He moved his hand.

"Take him to the torture chamber. There, he may realize the error of his ways."

The Executioner jerked at the leash, forcing Kanlor to follow. They went through a hall and down a short flight of steps, to come out into a large room. On the walls hung tongs, pincers, branding irons and other implements unfamiliar to Kanlor. The Executioner glanced around for a moment, then jerked his captive toward the center of the room, signing to a pair of assistants.

Overhead, a pulley was fastened to the rafters. A thick rope had been threaded through it and hung, its ends tied to a ring set in the floor. An assistant untied one end of the rope, then went to Kanlor and secured it to his wrist bonds. He slipped the other end from the ring and pulled on it till Kanlor was forced to bend over. The other assistant looped the free end of the rope through the ring again and took up the slack. They stood, eyeing their chief.

The Executioner nodded. "Take him up a bit."

The assistants hauled away and Kanlor swung a meter above the floor. A knot was tied, securing the rope end to the ring and again, the assistants watched their chief, who smiled approvingly at them.

"Very good," he said. He looked at Kanlor.

"Now, we are just ordinary men," he said reasonably, "who have to do our job. We have no real desire to do you hurt, or to cause you needless pain." He smiled disarmingly. "In fact, we really don't like to do it. Why don't you be a good fellow? Let

me bring his lordship here so you can answer his questions. It will make it easier for all of us. Your hurts will be tended and we won't have to go to great efforts. How about it?"

Momentarily, the thought entered Kanlor's mind that the man might be right. Perhaps he should simply answer. Then he remembered the questions. He could do himself no good, however he spoke. He closed his eyes, ignoring the fat man.

"Well, I tried." The Executioner sighed resignedly. "We shall leave you in the rafters for a time. You may consider and think of what you will tell the Examiner when he again deigns to consider you." He waved a hand.

"Pull him up, boys," he ordered. "We'd as well go out for a bite to eat." He turned toward the steps.

Wysrin Kanlor was no weakling. Long hours of work with shovel, hay hook and flail had given him powerful arm and shoulder muscles. He found that he could support his weight even in this unaccustomed position. For a while, he even thought he might be able to pull his body between his arms, swing himself up, and somehow undo the ropes with his teeth. Maybe he might be able somehow to escape. But there simply wasn't space for his body to pass between his arms. Blood rushed to his head and he was forced to give up the effort and to dangle, breathing heavily.

His shoulders began to ache with the strain, then the muscles of his chest added their complaints. Time passed and the ache became a numbing sea of pain. He breathed in agonized gasps, dimly wondering how many eternities he had been up here, and how many more long aeons it would be before he was taken down.

He tried to focus his eyes on the stone floor, but the flagstones blended into a blurred, gray mass. Agony spread over his entire upper body, then even his legs began to cramp.

And still he hung from the pulley, gasping through wide-open mouth and wondering how long it might be before his shoulders would tear loose to drop him to the floor below.

At last, he stopped even wondering and simply hung, submerged in formless pain.

Dimly, as from a long distance, he heard footsteps. The rope vibrated. Suddenly he was falling, only to stop with a violent jerk that tore muscles and tendons. A startled scream forced its way from him.

"The man is not truly dumb, your lordship," said a voice. "Perchance he can answer your questions now."

"Your name? Come, fellow, give your name." The second voice was imperious.

Kanlor managed to open his eyes.

"Please," he croaked. "Let me down."

"Later. You have questions to answer now. Come, now, what is your name?"

"Kanlor. Wysrin Kanlor. It hurts!"

"Never mind whining. Just answer. How long have you been a witch? Five years?"

"I'm not a—"

"Fellow, we've been most forebearing with you. Now if you persist in your refusal to answer, we will have to put you to the torture. Once again, how long have you been a witch?"

Kanlor closed his eyes. Talking did no good and it took too much effort. Perhaps if he hung here for long, his heart would stop. The peace of death would be better than long periods of suffering.

"The man is still taciturn. Indicate to him what may lie ahead should he persist in his silence."

Kanlor felt liquid being poured over his head. A rag was roughly wiped over his face. He could feel a chill on his back as some of it trickled down his spine. A torch was brought near and suddenly, his head and shoulders were enveloped in flame. Desperately, he held his breath, refusing to let out the screams that fought to be released—holding back sudden madness that tore at him.

The flare died as the alcohol burned out. Cold salt water was dashed over him and every nerve screamed in outrage.

All at once, he was coldly, clearly sane and aware. He had seen people burned over large parts of their bodies. They never survived. He would never again walk the fields; this, he knew.

But they'll get little satisfaction, he told himself fiercely. *I may not live, but I can die silent.*

Dimly, he heard question after question. He sealed his lips, holding one all-encompassing thought. *Silence!*

At last, he was taken down and bedded in some straw, only to be awakened for more questions. Someone explained to him the ways of witches.

"So, you see, you will be giving away no secret," he was told. "We only wish that you may purge yourself of your sin."

He lost all track of time. Questioners hammered at him. Variations of torture were tested. At times, he lost consciousness, only to be roused by buckets of cold water. There came a time when he was unsure as to whether he was speaking or not.

And there were other times when he wondered if perhaps he had, by some force of his desires, caused drought, raging flames in neighbors' fields, death of cattle.

At last, he realized vaguely that he was being supported by two men and taken to the open air.

There were many people. He was chained, then left alone.

Then flames and smoke surrounded him and he waited for an end. It would be relief. He fainted.

Carlsen watched the viewscreen as relayed recordings flashed across it. His hands flicked over the editing controls as he alternately speeded and slowed the presentation. Suddenly, he straightened and brought the presentation to normal speed. This one was recent.

He watched as the victim was stretched on a rack, then listened as unanswered questions were asked. He glanced at the data panel and shook his head furiously.

That was less than an hour ago!

Abruptly, he snapped the recorders off and turned to his flight controls.

I've had it! It's not all that far to Varsana. The devil with concealment. Let 'em hear a good, solid sonic boom. Might give 'em something to worry about.

The ship leveled off at two thousand meters and streaked toward the town at the head of the valley. Ahead and below, the plaza came into view and Carlsen kicked up magnification, then swore and threw the ship into a screaming dive.

Pen Qatorn stood before the wide door of the House of Questioning and watched as Kanlor was fastened to the execution post.

"This," he said, "is a stubborn witch. Not a word from him. May there be few like that."

His secretary nodded. "Yes, sir, but there is yet this man Mord. Perhaps he may tell us of other suspects."

Pen Qatorn cleared his throat. "Well, at least, we're well rid of this Kanlor." He waved a hand curtly at the Executioner and pitched his voice to the right judicial tone.

"Let the flames rise," he called, "that they may purify the duchy of this evil one."

The burly Executioner tossed a torch, then reached for another. Faggots and brushwood smoked and flamed.

Then there was confusion. The plaza shook to a loud explosion. A blast of wind raged briefly. The fire, fanned into sudden fury, flew toward the spectators, who beat frantically at suddenly flaming clothing. The confusion became panic. Coughing and screaming, the crowd became a terrorized mob that stampeded wildly through the streets.

Unbelievingly, Pen Qatorn stared at the chaos. At last, he recovered his thoughts and looked toward the execution pole. Something was . . . somehow, the captive was being released. The Examiner started to dash forward, then cringed away as pale blue flame washed over the flagstones toward him.

Chief Surgeon Palken was just snapping his communicator off as Carlsen came in. He looked up, then spread his hands.

"I don't know how the man does it," he said. "Know who that was?"

"Commander Walzen?"

"Right. How did you know? Well, anyway, he's demanding things. First, he wants that primitive you brought in today. Next, he wants you to report to him immediately. Says he knows you must be in the hospital area and I'd better find you." He smiled wryly. "You've got me nicely in the middle."

"At this time of night?"

Palken nodded. "At this time of night! He's screaming for blood. Says he's going to get that primitive out of here and back to his own planet a little sooner than possible."

"That's a man he's talking about," Carlsen said softly. "His name is Kanlor and if he goes back to his own planet, he's going to be burned as a witch. How is he, by the way? That's what I came up here to find out."

"Physically, he's coming along nicely. You people did an excellent first-aid job on him. Psychologically, though, I'm not so sure. Pretty traumatic. Thinks he's dead—or should be."

"Yes, sir. Well, that'll be a nice headache for the Corps rehabilitation people, I guess. I certainly am not about to release him to C.A. He's part of a Corps mission and I haven't even got off to a good start with it yet."

Palken shook his head sorrowfully. "Now I know I'm in the middle," he complained. "I've worked with our Corps Commander A-Riman and he's about the last man in the Federation I want to mix with. On the other hand, Commander Walzen's no lily, either. He's got something on half the people on this base."

"Oh?"

"That's right. You know, almost everyone's left a body buried somewhere. The good commander seems to know where each one is, and just how to dig them up." Palken shrugged. "I think he keeps a special file—a large one."

"I see. Well, I don't think he's found any of mine yet. He'd have used one already." Carlsen looked down at Palken's desk. "I'll report to him right away, of course. There's one thing, though, sir."

"What's that?"

"Please keep several of your people that aren't in the commander's files around Kanlor from now on out. If I lose him, Corps Commander A-Riman'll fry me like a doughnut."

Palken looked after him as he walked out of the office.

Yeah, he said happily, *after he's rendered me out for the grease.* He reached for his communicator switch, then changed his

mind and hurried out to the corridor.

The clerk finally looked expressionlessly at Carlsen.

"You can go in now, sir." He watched as Carlsen went through a door, then turned his attention to his records, smiling derisively.

That's one wise guy who's going to be a tame pussycat when he comes out of there.

Carlsen stepped toward the desk, then stood, waiting.

Commander Kar Walzen took his time about affixing his signature to some papers, carefully put them in appropriate file folders, then looked up and regarded him coldly, slowly inspecting him. Finally, he spoke.

"I understand you landed on a newly discovered primitive planet and interfered with native affairs. Is that correct?"

"There is a dangerous trend in—"

"I asked you a question. Did you, or did you not, make planetfall and take a native off planet?"

"Yes, sir. I did. But—"

"Well, at least I'm glad you have the sense not to deny obvious facts. Now, did you cause a panic and injure some natives?"

Carlsen stiffened. "Sir, you have obviously gained access to my report. It was under confidential seal, addressed to Philosophical Corps Command. This is in violation of regulation—"

"Never mind quoting regulations. Remember this. I'm a staff officer assigned to this sector. I'm not half a galaxy away, I'm here. And you're here. Now, I'm going to review every report that goes out of my branch. And they don't go out until I have approved them. I cautioned you about trying to go over my head to Sector. I've seen your records, yes. And I didn't like what I saw." He drew a long breath and stared angrily at Carlsen.

"I didn't want a Philisophical Corps detachment in the first place. You and your crew of so-called specialists were crammed down my throat and I never liked it. I tried to make the best of it and put you to some use, but it's no good. I can't see much difference between you and your do-gooders and a bunch of thrill-happy drones and I don't like drones. I don't like any kind of criminal activity and your actions have that same unsavory smell. I'm telling you now, I won't tolerate any further such activity so long as you're under my command.

"I'm still going to be fair about this. I'll give you a chance to explain yourself. Why did you go in as you did? Were there any signs of outside interference with the culture?"

Carlsen shook his head. "That culture was endangering itself," he said. He held up a hand as the commander started to speak.

"Sir, I'm sorry, but my detachment is *not* under your command nor am I. We are assigned to act in coordination with your branch and we've leaned over backward in actually taking missions that should have been done by your teams. But—"

"You're assigned here. I'm the Criminal Apprehension Officer for this sector and you are just one of the junior officers in my jurisdiction. And don't try to quote regulations to me! I've read 'em. Now I'm going to order you—"

Again, Carlsen's hand went up, palm forward. "Commander, we are not directly under your command. You know it and I know it. I intend to take my team back and clean up the situation we found. If you have any further comments, I'd suggest you take them up with the Sector Commander for referral to my Corps Command. Right now, sir, with your permission, I'm going over to Headquarters, where I shall make sure that my report is forwarded immediately. If necessary, I shall get the duty officer to contact the Sector Commander directly."

Commander Walzen was a large man. He got to his feet and strode close, to tower over the junior officer. Fists clenched at his sides, he stared down threateningly.

"All right. For the moment, I'll assume you're not directly under my command. I should put you in confinement and prefer charges. But I won't do that just yet. I shall write up those same charges and put them through channels. Meantime, you'll remain on duty and your report will be forwarded."

He raised a fist and slammed it into his other hand.

"'I will say this, though. I want you to write up a full, detailed operational plan and then take that crew of yours back and clean up the mess you made. I'm not going to waste the time of any of my own people in bailing you out. I'm not going to tell you how to do this cleanup but I want it done and done in a hurry. Is that clear?"

"Quite, sir." Hal Carlsen snapped a salute and strode from the office. He closed the door with forced gentleness and looked back.

Brother, he murmured. *I'm glad the detachment* is *on 'detached.' If that is a typical C.A. officer, they need to do a lot of housecleaning.*

Carlsen examined the cliffs as he approached.

Come to think of it, they do look like the remains of an ancient seashore.

People, you jerk, he reminded himself, *not geology. A full operational plan that idiot wanted! Hah! We've got things roughed in, but I won't know the details till the job's done.* He frowned.

Wonder if the Old Man'll bail me out. That guy's sure to use that for a 'direct order' charge. And he is *a senior officer."*

The communicator screen lit.

"Chief?"

"Go ahead, Waler."

"I suppose you know, you've made the local pandemonium."

"Oh? How's that?"

"Just picked up a lecture. Seems there must've been at least a hundred people saw you pick that guy out of Varsana. You're twenty meters tall, got six or eight extra arms, and poison dripping from every fang. You kicked the fire all over town, clawed down a building or two and breathed fire and poison all over the Chief Examiner, his clerk and three local judges. They're martyrs now. Then you picked this poor witch up. Jerked him off the pole, chains and all, then tore him into little bits and scattered the pieces so far they haven't found a trace yet."

"Wow! And I didn't think they'd have time for a good look." Carlsen grinned, then sobered. "Look, Waler, we've got to get rid of that story before it grows up and has pups."

Waler shook his head. "Might have to take a demonology lecturer or so along with it, sir."

Carlsen shrugged resignedly. "Well, if it comes down to it, the civilization can stumble along without them." He stroked his chin. "Maybe next time around, they'll have a chance to be useful citizens. Just don't hurt them any more than you have to."

He snapped off the communicator and reached for the wall panel. It would take at least two spyeyes for this job, he decided. In fact, three would be better.

Duke Khathor par Doizen, Protector of Varsan and the High Marches, looked at the plump man at his right.

Another Examiner, he sighed to himself, *and full of his convictions and duties. Well, at least, he's one who likes good food and wine. That other fellow made a man uneasy every time he touched a cup.* He lifted his wine cup and sipped.

"It is to be hoped, Sir Examiner," he said, "that you may be able to clear our duchy of all evil in short order."

A servant had just filled Examiner Dorthal Kietol's cup. He set it on the table and turned away. No one noticed that the liquid wavered and rippled more than was normal.

Kietol seized the cup, drank, smacked thick lips, then drank more deeply. He moved his heavily jowled jaw appreciatively.

"An excellent vintage, my lord," he commented. He swayed a trifle in his chair, blinked and shook his head uncertainly, then looked through squinted eyes at the duke.

"You were saying?"

The duke frowned. "I was speaking of this evil that has come to our duchy," he said. "We hope it will soon be rooted out."

Kietol wagged his head, then

drained his cup. He slammed it to the table and waved expansively.

"Nothing to fear," he said loudly. "We'll burn 'em all. Get all the money." He squinted at the duke cunningly.

"Got lots of fat merchants, hey? Rich farmers, too." Again, he wagged his head. "That pen Qatorn, he was a smart one. Good records and we have 'em. Lots of money here." He weaved, then threw his arms out. "We'll get 'em. Burn 'em all."

Par Doizen set his cup down carefully, regarding the Examiner searchingly.

"Yes," he admitted slowly. "Witches should burn. But what's this about merchants and rich farmers? And what of the demon? Isn't there a chance he might return?"

Kietol's head had dropped to his chest. He lifted it with a jerk. "Whazzat? Oh. Witches are rich. Rich are witches." Again, he jerked his head up. "Oh. Huh? Demon? Ha, I know about that. Never any demon. No demons. Just a little storm, y'know. *Whoosh!* Fire blows all over. No such thing as demon." He squinted at the duke, his head weaving uncertainly.

"You're a smart man, Khator, smart. Oughta know better. Demons something for the mob, y'know? Scare 'em good. Then we get the money, see? Duke gets land, College of Examiners gets big, see what I mean?" His head rolled and he put his arms on the table and slumped over. He snored.

His secretary had been sitting down the table, watching in consternation. He got to his feet.

"Why, they've bewitched the Examiner himself," he cried. "We must get an exorcist at once!"

The duke looked thoughtfully at the snoring man by him, then got to his feet and looked down the length of the table.

"They teach that demons and witches have no power against the ordained, or even against men of the law," he said slowly. "But there! I can't argue the point. I know little about demons. But I do know drunks. And this man is drunk. I've also found that men are prone to speak their true thoughts when they are as drunk as this." He pointed to the Examiner, then looked up.

"But I, your Protector, have had little wine. I am not at all drunk. And I say this. No more shall property be confiscated, whatever the charge. Trials may be and shall be held, to be sure, but only on proper and legal representation. And I shall have an officer present to see that none is unduly mistreated. Those who would confess shall stand alone and cry their misdeeds without constraint. Those who will not confess shall be convicted only upon proper representation by reputable witness. And finally, no more excessive fees shall be paid to guards and executioners,

nor shall they feed at the expense of the accused." He looked sternly at his clerks.

"Let this be inscribed for our signature and posted on the morrow." He swung to face the Examiner's secretary.

"You may escort your master to his bed chamber," he ordered. "When he has become sober, you may tell him of this, our edict." He sat down.

In the absence of the guest of honor, the banquet was soon over. Par Doizen made his way to his chambers and perched on the edge of his bed. He sat for a while, thinking, then pulled at a bell cord.

A clerk came in. "Your lordship?"

"That edict I announced. Is it ready?"

The clerk nodded. "I have a fair copy for your hand, my lord. A copy has gone out by courier to the printers."

"Before my signing?"

"My lord, you sounded most urgent. It is late and the printers must have time for their work."

"Yes. I must have been a little tipsy myself. Well, it's said. Let the man go. Every important man in the duchy was listening and I'll be damned if I'll eat my words." He pulled an intricate signet from his belt pouch and held it out.

"And, Kel."

"My lord?" The clerk was inking the signet.

"Go to the Captain of my Guard. Tell him to rally as many men-at-arms as he can find. We may need them. No, better yet. Tell him to report to me immediately and in person."

Hal Carlsen smiled contentedly as he watched the viewsphere. Examiner Kietol was moving about his chambers dispiritedly, picking up belongings and throwing them into a chest.

"I tell you, I couldn't have been drunk," he was saying. "I haven't been drunk these many years, since I was a mere student. And on only three cups of wine? Three, I tell you. Now how could any man get drunk on a tiny sup like that?"

His secretary shook his head. "I don't understand it, sir. You looked drunk. You acted drunk. And sober, you would never have spoken so. I don't know."

Kietol wagged his head, then winced. "I know," he admitted. "I don't remember, but I've been told what I said. And the next morning! By my faith—such as I now have left, you understand—I can still feel that headache!" He slammed the lid of the chest shut.

"Well, that's the last of it. Let's go down and make our way out of this accursed duchy as fast as we may, while the duke still has the grace to protect us on our journey."

Carlsen laughed. *Well,* he told himself, *it'll be a while before any Examiner dares show up around*

here. He snapped the communicator on.

"Cisner?"

"Here, sir. Chief, you just wouldn't believe it unless I ran the whole take for you. They're burning 'em five or ten at a time down here. This bunch of vultures have gone wild. They're getting filthy rich and the archduke is getting a good slice, too. He's cheering them on." Cisner paused.

"Look, Chief, the old boy's got a nephew who's the heir apparent. Young fellow. Doesn't think much of the whole thing. Never goes to executions unless his uncle makes him. Can't I just wait till he isn't there and then dive in? I could get the whole mob with one blast."

"Not only no, but hell no!" Carlsen shook his head decisively. "Once is a great plenty. I'll admit I blew my top and we're on the way to covering it up. But if we do it again, we'll stir up a real mess. Varsana's looking good right now, but another blast'd have the duke wondering and maybe changing his mind." He looked thoughtful.

"You say the nephew is the heir apparent and he's against the Examiners. That right?"

"Yes, sir. And when he hears about Varsana, he'll feel even more strongly. But right now, he's keeping awfully quiet. The Examiners are getting wise to him and they're beginning to think about sneaking him into one of their torture chambers some night. He knows it and he's getting scared. That's another thing, Chief. I—"

"I told you, Cisner, no!" Carlsen held up a hand. "Look, why don't you slip a spyeye into the archduke's bed chamber? You might get an idea."

"But, Chief. He holds conferences there. I've got—" Cisner looked confused, then suddenly smiled wolfishly. "Oh! Yes, sir! I'll get right on it."

"Out." Carlsen turned away, then tapped the switch again.

"Waler?"

"Still working, Chief. I got an assist from your way, though. Peddler's caravan just drifted into town. They're talking all over the taverns about the drunk Examiner over in Varsana. Incidentally, what happened to that guy, sir?"

"Oh, just a little drug I whipped up. Made him look drunk and feel awfully truthful."

"Oh. Maybe I could use some of that, too. Well, anyway, I don't know why these peddlers came running over here so fast, or how they got their story prettied up so well, but it's a big help."

Carlsen chuckled. "Let's say they got a little push," he said. "Incidentally, they ran off with one of my spyeyes. How about picking it up?"

"Will do. Oh, there's another thing. Remember that demonology lecturer I reported on? The one with the nightmares? I tried to

poke him around a little during a lecture, and . . . honest, Chief, I didn't punch at him hard at all, but he went into convulsions. Raved a bit, then died off right in front of about twenty students."

"Not so good." Carlsen frowned. "I suppose that's all over the taverns, too?"

"Within an hour." Waler shrugged. "But there's a switch. He was Doctor Big Authority and he's the guy that'd sold everyone on the idea that no demon or witch had any power around either a law official or a member of a recognized order. And that, they wanted to believe, so it stuck. It's practically an article of faith. But that only leaves one explanation for what happened to him. He must have been struck down for fibbing." Waler smiled deprecatingly.

"I sort of helped out on that idea. It seemed to tie in pretty well with the peddlers' stories."

"Oh. So it's not so bad after all. Well, keep after it."

"Yes, sir. Out."

Carlsen turned to stare at his flight controls.

One down. One possible—maybe two. Waler seems to have things going his way. Of course, there's Wenzel and Pak, down at Holy City, but they're just getting a nice start. He massaged the back of his neck.

I think I'll go back to the cruiser and start correlating this stuff.

The room was littered with scraps of tape and scribbled notes that had missed the disposal unit. Carlsen inspected the floor, then sighed and started scooping up the debris. At least, the whole thing was up to date, in order, and stored in memory units. It included everything of any significance from the original data. He looked around at the communicator panels. Of course, there were a couple of loose ends, but—He walked over to the communicator.

"Cisner?"

"Here, Chief. Mission accomplished. Request permission to return."

"Oh? What about your archduke?"

"That's why I want to come in, sir. You may want to eat me up and make me pay for one each transponder, surveillance shielded." Cisner managed to look woeful.

"I musta goofed my preventive maintenance on that spyeye. It blew its power unit just a few hours after I slipped it into the old boy's bedroom. Practically no explosion and no serious fusing, but it scattered neutrons all over the place."

"Anyone get burned?"

"Just the archduke, sir. He'd gone to bed. Must have taken almost a thousand roentgens. It's lucky those walls were pretty heavy. They made good shielding and no one else got hurt. His nephew took over and he's flat re-

fusing to give the Examiners any cooperation. That Varsana story got down here and he's following the pattern." Cisner laughed.

"They tried a couple of trials, but they didn't go so well. First one, an Executioner tried to slip a thumbscrew onto the accused and one of the duke's guards fed him his teeth. The Chief Examiner tried to rule that the things didn't constitute torture and the Captain of the Guard offered to let him try a couple on, just for size."

Carlsen looked thoughtful. "Of course, you didn't have a thing to do with that?"

"Oh, no, sir." Cisner looked innocent. "I was just observing, sir."

"Naturally, I believe you. But remember, the memory units pick up all the impulses."

Cisner looked apologetic. "Well, you know how it is, sir. A guy sometimes hopes a little."

"See?" Carlsen laughed. "Now that's what I'd call confession without torture. How about the pieces of that blown-up eye?"

"All policed up, sir. I'll turn in the wreckage soon's I get back."

"Fair enough. Maybe we can call it operational loss. Out." Carlsen depressed another switch. "Wenzel?"

"Reporting, sir. They're having a big trial here. Seems the Bursar for the College of Examiners has come up awfully short. He can't account for what happened to about three quarters of the year's take."

Carlsen shook his head. "Even the most ethical organizations will hire a thief now and then, I guess. Any trace of the loot?"

"No, sir. He just won't talk. The High Priest is just about fed up with the whole thing. He's about to decide they've been hunting the wrong people." Wenzel paused.

"But Pak and I've got a little problem, Chief. We just found a lot of odds and ends lying around in the scouter. Place looks like a junkyard in distress. What shall . . . Hey, Chief. We got a visitor!"

"A what?"

"There's something nosing around here. Something pretty big, too. I'll swear somebody just peeled our screens back like a banana and took a real good look. Pak's got the detectors working overtime and we can't get a thing except a damn strong shield."

"Hang on. I'll bring the cruiser down and open him up. Out."

A third voice broke in. "Never mind, Carlsen. I'm coming your way now." The panel flickered and a sharp-featured face looked out.

Carlsen jumped. "Yes, sir! Welcome aboard, sir." He depressed switches. "Philcor Seven. Immediate recall. And make it fast."

Corps Commander A-Riman strode around the room, then perched on the edge of a desk.

"On the whole, I'd say you people have done an acceptable job so far. You've got a few rough

edges left, but at least, you've definitely stopped what could have been a disastrous massacre of psionics." He looked back at the computer reflectively.

"You know, there have been civilizations that have eliminated virtually all of their parapsychological potential. Every one of them has had serious trouble. Development's always one-sided and there's the danger of complete self-destruction. That's happened, too." He shrugged.

"You've prevented that here—at least for the present. Of course, it could flare up again. We'll have to work out something to prevent that." He looked at Carlsen expectantly.

"I'll have to think that one over, sir." Carlsen hesitated.

"One question. I did disobey a direct order back there at base. No operational plan, and I was ordered to turn one in."

"An order issued by competent authority, in the legal performance of duty?"

"Well . . . I didn't think so at the time, sir."

A-Riman nodded. "Neither did I when I heard about it." He smiled. "I had a little conference with some people before I came out here. Commander Walzen's decided to forget about any charges. I would suggest, though that you remember the experience. You actually were guilty of an entrapment."

"Sir?"

"That's right. You let him push you and your people around when you first reported in. It gave him the idea he could do anything he wanted to. Then, when you got your back up, he was surprised, hurt, and jolly well peeved about it. Worms aren't expected to turn, you know." A-Riman waved a hand.

"But that's over. Now you've got another problem. What are

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PLACE	TITLE	AUTHOR	POINTS
1.	In Our Hands, the Stars (PT. 1)	*Harry Harrison*	1.75
2.	Mindwipe	*Tak Hallus*	2.55
3.	Testing . . . One, Two, Three, Four	*Steve Chapman*	2.64
4.	Any Number Can Play	*Richard Lippa*	3.86
5.	Superiority Complex	*Thomas N. Scortia*	4.00

THE EDITOR

you going to do about that man you sent to Rehabilitation?"

"Me, sir?"

"He's your man. You picked him up. Obviously, you can't just drop him back at his farm again. And you can't turn him loose in the Federation and tell him to make his own way. Do you want to enlist him in your detachment?"

"He'd need an awful lot of training."

"Yes. I'd estimate at least six standard years. It could stretch out to ten. Meantime, you'd be short a man. We do have some limitations, you know."

Carlsen dropped into a chair. "I've got a good crew. I'd hate to lose any of them."

"Any suggestions?"

Carlsen rubbed his temple, frowning. Suddenly, he jumped up.

"Commander, would it be possible to train this man for a fixed assignment right here? He already knows his own culture, and we certainly could use an observer on this planet." He strode across the floor.

"Anything out of the ordinary, we'd know about it right away. We could check on him periodically. Keep him supplied. Maybe brief him now and then."

The commander smiled. "Just the one man?"

"Well, maybe he could use some help, sir. But—"

"That's what I was waiting for. Now, your job is to pick up a few suitable recruits—people you are sure will fit in. They'll be trained and sent back to you, then you can put them to work." The smile widened.

"We've got a special training area for just this sort of thing, you see. There are quite a few native guardians in the galaxy, but no detachment commander ever hears about them until he comes up with the idea and asks for some. That's when he gets promoted. Congratulations, Lieutenant."

Carlsen stared at him, then suddenly started to laugh.

"Something is funny, Lieutenant?"

Carlsen forced his face back into serious lines.

"Sorry, sir." he choked out. "But it really is ironic. These people were about to institute a full dress massacre of psionics. And they'd have killed off a lot of non-psionics, as well. They were perverting their entire culture—maybe setting it up for destruction in the future. And all this was just to stamp out an imaginary cult of witches. Now, they're going to have real witches with real powers around. And they won't even know they exist."

A-Riman regarded him for a minute, shaking his head. Then he chuckled.

"That's one for you, Carlsen. Now here's one for their side. You're going to be on the job to see that these are *good* witches." ■

QUIET VILLAGE

Force—like any other tool—is itself neither Good nor Evil. The purpose—not the thing—determines value!

DAVID MCDANIEL
Illustrated by Vincent diFate

The rats caught Rajer alone while he was up on the hill adjusting the 'tenna. They surrounded him, explained the situation to him, and then burst his left eardrum to make sure he understood they meant what they were saying. They also told him why nobody had heard from Morovia recently—they had just come from there because there was nothing left worth staying for.

"This place looks peaceful," they told him. "We wouldn't disturb such a nice place. All we want is a regular donation of food, water and pot. You go and tell your Block, then come back up here tomorrow afternoon and you can keep your other ear." Then they took his tuner and let him go.

Sereno was peaceful. About a hundred and twenty people living in thirty-some wood and adobe buildings up in Horn Canyon just north of Hunnington Trail. With a good steady spring that hadn't gone dry but once in living memory, they got along as well as anybody else and better than some. A stage made the trip across the Valley from Malibu every new moon—it took two or three days each way depending on the weather, and brought salt from the sea to trade for the pot that grew in the hills, the leatherwork they made, and wool when they sheared.

Blood was still trickling from Rajer's ear and had dried on his shoulder by the time he stumbled up to Jak's front door and fell against it, sobbing.

"How many were there?" Jak asked him while Mona dabbed antiseptic in his ear.

"The big one said there were fifty of them and some girls. They got my tuner so they'd hear if we tried to radio out. They'd kill us all, he said, like they did in Morovia." He was still shaking, and his voice was unsteady.

"How many did you see?"

"Ten. Fifteen. I don't know—they kept moving around me all the time. I couldn't tell."

"Bobby—"

"Yeah, Dad?"

"Go call a meeting for tonight. And see if the stage is gone yet."

"It went right by me over the hill just before the rats came out," said Rajer. "I think that was what they were waiting for. And. they were wearing old streetsuits—some of them were. There's nothing we can do. We've got to give them what they want!"

"Hold still," said Mona.

"I can't hear at all on that side," Rajer sobbed. "Don't make me go back up there alone—they'll make me deaf!"

"I'll go up with you tomorrow," said Jak. "But we'll have to tell everybody about it tonight and see what they want to do. Mona, put him to sleep. If anybody else sees him like this, they'll be as scared as he is."

Mona poured into a cup from a bottle she found in her bag, and gave it to him. He choked it down while she re-folded the cloth to a clean side and held it again to his ear. The bleeding had stopped, and shortly he slept.

Jak Mendez walked out into the hot dry afternoon and looked up at the round brown hills which guarded his home and his friends' homes—hills which now seemed to loom around the village like enemies. The dry grasses of late summer surrounded the stumps of steel and stone which still thrust above the soil, after three hundred sun-baked summers and a thousand heavy rainstorms, to loosen the gray adobe of the hills. There were still dry rooms underground which could be defended by anyone who wished to live in darkness like vermin and prey on those who lived in the light.

Three hundred years after the Plague had devastated the Earth, setting a brash star-spanning civilization back more than a millennium and leaving the handful of survivors without the technological base and energy which had supported it, most of the planet was still sparsely populated. Small communities clustered here and there, where life could be supported and some degree of human culture maintained. But there were always those who found it easier to take than to build, and the remains of the lost glories of their race supplied them with the power to enforce their demands. In this part of the world they were called rats.

So the rats had come from the east. How long had Morovia been able to support them? And what had finally run out? Only someone's patience? Morovia was—had been—half the size of Sereno; without a spring, they had been dependent for water on Wilson's snows. It had been a dry winter. Did the rats demand more water than the reservoir held? Or did they pollute it and then destroy the village in their blind anger? Jak had heard stories like that.

But wherever they had come from, and whoever had fallen before them in the past, they were here now. They'd looted in the ruins which covered ten thousand square miles to find the streetsuits which would protect them from the crude weapons available here; they had probably found old energy weapons for themselves. If Sereno refused their demands, he would be killed first and his sons next. If the villagers fought back, they would all be destroyed. The people would have to decide tonight what to do—but there seemed to be no choice.

The big room was filled, and torches along the walls smoked and flared as the breeze wandered above the shaking heads.

"I'll bet there aren't more than a

dozen of them," someone said. "They'd all have gone together to the 'tenna this afternoon. We can chase them away."

"With what? And what's to keep them from waiting up in the hills and killing anybody they catch alone? Or coming down here at night and setting our houses on fire?

"Who would volunteer to drive them away?" Rajer added. "Remember—if you fail, they'll kill us all."

"Well," said Jak after a pause, "I think it's obvious we'll have to agree to their demands tomorrow—keep them happy and maybe off their guard while we think of something to do We ought to find out what happened in Morovia."

"Dad—"

"Malcolm?"

"I could get there and back in a day or so. It's straight out Hunnington Trail and north a couple of miles. If you're going to give the rats what they want anyway tomorrow and take time to think of something else, I could be back tomorrow night. There might be some people left alive in Morovia, and I could bring them back."

"Plan to take a day each way. That'll give you more time there. And if you find anyone to bring back, you'll travel slower. You might want to take a burro. Is everyone in agreement, then? We'll all meet here second night and discuss the rats' demands and what happened in Morovia, and then decide what to do."

"Semmity Radio is on tonight, isn't it?" Mona said. "Maybe we ought to call the Scouts."

"Same objection," said Jak. "What if the rats beat them off? Besides, just hiring them to come here could cost more than we have."

"It could cost us our lives," said Rajer, "even if there are only a dozen rats. They want only food and water. We can live with them, and they won't hurt us if we give them what they want."

"Even if we did, we'd live under their threat until something else happened. Let's adjourn for the night. It's been dark about an hour, and Rajer shouldn't miss recording any more of the Semmity cast than possible. Is everything set up?"

Together they dragged out the large speaker and a table with the precious big tuner and Rajer's cubicorder. All but a dozen or so of the meeting wandered out, content to wait for a daytime playback of anything they might be interested in. Rajer switched on the tuner and adjusted its knobs with a musician's touch. Across the endless frying of the ionosphere, he focused on light, haunting music, then started the coupled cubicorder and went to sit with the others. At length the music ended and a voice spoke.

"You have been listening to

Mallowin's 'Progressions from a Theme,' by Thomas Digby. This is Semmity Radio, casting five thousand watts on frequencies of two-point-five megahertz, five, ten, twenty and thirty megahertz. This is the first of three consecutive nightly broadcasts, beginning with the second night of each new moon. Today was Thursday the eighth of August, 2638. The time is 2058, Pacific Coast Time.

"Our transmission tonight will be in three parts. Until 2330, the Principles of Effective Irrigation, Topic Four: Drainage Control. From 2330 to 2400, the Gershwin 'Concerto in F.' From 2400 to 0030, the Midnight News of the World for the past month. From 0030 to 0215 we will rebroadcast Computer Theory, part twelve, which was interrupted last month by power failure. From 0215 to approximately 0500, Richard Burton's classic performance as King Lear. Tomorrow night, 'King Lear' will open our schedule at 2100, followed by Irrigation, followed by Computer.

"All the services of Semmity Radio are brought to you by the Western Scouts. If you can use our advice or assistance, we monitor one-twenty-one point five megahertz and five hundred kilohertz twenty-four hours a day. Or we can now be reached by vidiphone through Frisco Island, Salt Lake, Denver, New Vegas or Drango. If you receive our broadcast east of the Mountain, call the MisipiPack, in Kayro Park. Outside the North American continent, confirm and report on our signal quality in your area. West of longitude one-oh-five in North America, call us with any problems you might have. No charge for advice or job estimates. The time in fifteen seconds, exactly 2100 hours, Pacific Coast Time. . . . Five, four, three, two, one, mark."

Then a different voice introduced "The Principles of Effective Irrigation, Topic Four."

Jak went with Rajer to the 'tenna the following afternoon, and five rats came out of the bushes to present their terms. All five were dressed in the bulky, archaic styles of streetsuits, the nearly impenetrable nyloid body armor which had been common public wear in the Old Days when any floor of any single residential dome had held more people in worse conditions than any town now west of the great mountains, and a single block held as many people as there now were in a million square miles.

The five advanced in a group, and the largest one snarled at Jak. "Keep away from me, mud! All you're good for is digging and planting—and pretty soon you'll be ready to plant yourself. Are you the Block?"

"Yes."

"O.K.—here's a list. We've got three charged blasters right on

your beam, by the way, in case you were thinking about arguing. We'll want this much delivered to that big pile at the west end of the hills. We'll be living around there somewhere, and we don't want to have to walk too far. You'll deliver this much every week, and if you're late we'll remind you. Oh—sometimes, one of us might come into town for something special. Whatever he wants, you'll see that he gets it. Because if he has any complaints about the service, we'll come back to make sure it gets straightened out. You got all that, mud?"

"Yes. What if we don't have something you want?"

"Well, mud, it's up to you to find a substitute that will satisfy us. Just remember, we're pretty choosy. You got any more questions?"

"No."

The rat slapped him suddenly. "That's wrong. You want to know when we get our first delivery. You can take two days this time because we want to start off like good neighbors. You're going to like having us around—or else." He looked at Rajer, his ear bandaged, and laughed.

The five turned like landlords who dismissed their tenants and swaggered back the way they had come. Jak looked at the sheet of paper in his hand, and Rajer read over his shoulder.

"Two sheep every week?" Jak read. "A hundred gallons of water. Ten gallons of berries every week until the first big storm and two gallons after that. Fifty ears of corn until we harvest, then two gallons of flour every week—" His eye ran on down the list, and his jaw quivered.

"—Two pounds of pot and half a pound of salt every week." The people of Sereno sat in silence on the rows of benches in the smoky hall as Jak finished reading the list, and looked up. "Tomorrow night Malcolm will be back from Morovia. But next day we must have all these things ready to take out to Citivist."

"They've moved into Citivist?" George gasped, looking at Mona, and a gentle chuckle rippled around the room. Citivist was the end of the low range of hills which enfolded Sereno in one maternal canyon, where the stub of an ancient apartment tower rose nearly three floors, looking out over the wide flat Ellay Plain past the white-pillared ruins two hours' walk from Sereno towards where the distant ocean touched the horizon on a clear day. The Ruins might be the goal of rare holiday excursions, but had been picked clean by generations of everything but archaeological interest. The view from the tower was romantic by moonlight, and the spot was favored by young couples of the village, contracted or free.

"At least they won't be watching

us from hiding all the time," said one of the herdsmen. "I don't think any of them would want to sit out in the open air all day, or walk a couple miles back and forth. And they won't be likely to drop in for something they might need."

"But when they do come, it won't just be on a casual impulse, and they'll be harder to deal with," Jak said. "Now, we'll all share the cost of supporting them, but this time I'll put up the two sheep and the big watersack. We can work out something equitable before next week. Everything else in this list we can chip in on. Bring your shares tomorrow night and we'll see what Malcolm has found out. If anybody can't remember what we need, see me tonight or tomorrow. When you've looked over the list and we get the shares worked out, Rajer will play last night's Midnight News for anybody who's interested. Yes, Mona?"

"Uh, have you thought about the Scouts?"

Jak looked around the room. "Has anyone else thought about the Scouts? We'd have to feed them in addition to all the rats for a while, and they'll have to be paid."

"And if they only succeed in making the rats angry, we'll all be killed," said Rajer.

"But if we don't call them," Mona said, "the rats will starve us all. Two sheep a week—in a year that's a tenth of our flock. And what about the breadfruit? We haven't had enough of that in the last three years. They couldn't have got this much from Morovia."

"Apparently they didn't," said the same herder. "I agree. We can't keep up anything like this for very long. I say we should call the Scouts—price and advice given free."

"We can't use the radio—the rats'll be listening. But we could try to phone through Malibu. The Valley line was open last week when the stage came; the driver told me about it."

"I'd been thinking of trying the phone," Jak said. "Malibu has a good radio and a directional 'tenna. They could cast north and a Troop might be here in a month."

"This time of year they could make it in two weeks."

"They'd take a while getting ready. We can feed the rats for a month if we know they'll be gone the month after that. Is everybody agreed?"

"I'd like to wait for Malcolm to come back, Dad. He might be able to tell us how many there are and what kind of weapons they have."

"Right, Martin. We'll postpone action on this until after tomorrow night. Convince them we're willing to cooperate. Then if we can't get Malibu on the phone, somebody will have to go there with the message."

All this while the list was handed among the benches, people leaning together over it. Muttered comments grew as it passed from hand to hand, resentment condensing around it until every voice in the village was ready to agree this toll could not be borne. Then shares were worked out, leaving everyone angrier and feeling more helpless against these parasites who had descended to loot them of their food. Few of them cared to stay to hear the news.

Two days later, a direct vidiphone contact was established through Malibu up the coast to Frisco Island and thence east through an automatic relay station at Sacto into Semmity. The sound was clear from the little speaker of the handphone, though the picture was faint and rolled constantly. Jak saw a lean, white-haired man as brown as a tree, who wore a green sash across his chest decorated with ranks of obscure symbols.

"Rats, eh?" he said. "we can probably help. How many are there?"

"They claim fifty, but they've ordered enough food for thirty."

"Then there are probably fifteen How are they armed?

"They have some energy weapons. My boy went to Morovia, where they came from, to see if there were any survivors. There weren't. And there was evidence of a blaster having been used. Maybe more than one."

The Master of Semmity Troop nodded, a file of ghostly images. "We can send a patrol down for twenty dollars a man. Under the circumstances I wouldn't send you fewer than four. You will be expected to board them and their mules and re-equip them for the trip back. Also, any pay earned by a Scout who is killed in your service goes to the leader, and the leader will bring it back to us. I would suggest you hire five. Sereno should be worth a hundred dollars. We can also discount the value of anything the rats might leave. If they have energy weapons in good condition, for instance. A blaster might be worth twenty dollars."

"How much would five streetsuits be worth? I've seen them, and they look good as new."

"Couldn't guarantee. Four dollars each is reasonable, but some of them might have to be damaged to kill the rats inside. I think you need a five-man patrol. If you're willing to accept our terms, they may be there around the next full

moon. They can find you easily enough—we have excellent maps. Since you're probably being watched, they'll come in from the east after dark some night. If they haven't shown up in a month, call us back. The phone here always works."

"I wish we could say the same. Thank you, and we'll have the money ready."

"Fine. Best of luck meanwhile, and try not to make the rats angry. We hate to lose business."

As the picture from Semmity faded, Frisco Island came on the line in the person of a cool-looking girl. "Hi, Sereno," she said. "I hope you don't mind my cutting in, but we wanted to keep the line open to Malibu. Besides, our Comm Center here wondered how you'd been picking up our recent audiocasts."

"Fine, Frisco. Our 'tenna is in good shape, and those weather predictions have been a lot of help."

"They'll get better. Blue Valley expects to be able to lock onto a weather satellite for this hemisphere with another year's work. They've already got signals that it's

still working, and they hope to be able to read pictures from it. Are you a Tech?"

"No. You want to talk to Rajer about tuners and things like that. Keep the line open."

By the time Rajer came at Jak's summons, the little vidiphone was silent, and several minutes of signaling failed to raise Malibu.

"It must have gone out somewhere in the Valley line," he said at last. "You got Semmity, though?"

Jak nodded. "The Master said a patrol would be down by the full moon. Five men at twenty dollars each, but they'll take some of their pay in loot. I think we can manage."

"Only five men? Against fifty rats?"

"He seemed pretty confident. Suggested four could be enough. I'll tell the meeting tonight."

Less than a week later one of the rats came into town. It was late afternoon when he appeared, striding sure-footedly down the steep hillside towards the small corral where the breeding goats were kept. Two children were watching the goats; they stopped playing and stood up as he approached, staring as though they had never seen a stranger before.

This one was small and slight of build, scarcely larger than either of them. He wore a flowered sleeveless shirt and loose pants. His skin was pale, and looked soft. He smiled at the children as he glanced around for an adult to speak to, but his eyes had a glassy blankness when he finally focused on them.

"Gimme some milk," he said.

Their eyes got big, but neither child moved. He stopped smiling.

"Gimme some milk!"

The younger child stuck a grimy fist in her mouth, and seconds passed.

"All right, gimme a pail," the rat said, his voice rising. "And I'll show you how to milk a goat."

Suddenly both children giggled. The rat struck violently at the nearer, who slumped limply to the dirt and lay unmoving and the other screamed and ran away towards the silent houses.

The rat looked after her and shrugged. There was a small pail hanging on one fence post—he took it down and entered the corral. Ten minutes later, after he had filled the pail with warm foamy milk, he looked up.

The child still lay where she had fallen, but beyond her, watching silently, stood half the people of Sereno. Wind whispered the long sweet leaves of eucalyptus behind them, but they neither spoke nor stirred.

He stared at them suspiciously, then laughed. "You mud should teach your get some manners," he said. "You can pick up the pail next time you bring us food."

No one moved as he turned and climbed the trail west, the heavy pail swinging beside him. But as he passed out of sight over the ridge they moved forward as one to cluster about the child. And only then murmurs passed among them. *"Scouts. Full moon. God willing—"*

A cloudless sky held a full moon above the eastern horizon, and yellow firelight was visible through curtained and screened windows. Frogs and crickets shouted back and forth in the faded twilight. Silently, up Horn Canyon from Hunnington Trail, wound a file of men and mules. They stayed under the trees in shadow, and even the animals seemed to know how to place their feet amid the dry leaves and twigs on the hard gray earth.

Jak and his boys were just sitting down to dinner when there was a light tap at the door. They looked at each other, then Jak shook his head silently at the four of them and rose to answer it.

Outside stood a broad-shouldered, short-necked man in adobe-colored clothing. On the front of his shirt, just below his full beard, gleamed the silver emblem of the Scouts. He unclipped it without a word and held it out to Jak. Sealed in the reverse was a full color solidograph of the man and a medicode number.

Jak stared in wonder at the solido for several seconds before thinking to compare it with the face of the man who waited patiently on his doorstep. When he looked up, the Scout said, "My name is Bern Targil. I have four men with me and five mules."

"Will you come in? I can go open the barn."

"I'll come with you."

"Boys," said Jak to the looks of surmise around his table, "go ahead and eat. I'll be back in a little while. The Scouts are here."

"Dad? Can I go tell people? I can eat when you come back."

They left, Bobby at a run, the two men more leisurely in another direction.

"I didn't know how things stood," Bern said as they walked towards the barn, "so my patrol is staying out of sight. Do the rats watch you?"

"We've never seen them."

"Rats don't hide well. We'll keep our mules under cover unless you have a herd we could mix them in. But we must be free to move around. Where do we bunk?"

"My place. I'll take care of your board while you're here."

"You still know where they're holed up?"

"Apartment ruins a couple miles west. We take the food out there every week, and I've had a couple of kids watching from a distance until they take the food inside."

"We'll go into all this over dinner. I've got another Eagle and two Scouts along. And a Cub. They'll hear everything anyway.

Can you feed us tonight? We came over the pass north of Berdoo, and there isn't much forage south of the mountains. Looked over Morovia, by the way. Talk about that over dinner, too." He made a cooing, warbling sound deep in his throat, and silent shadows slipped from under the trees to follow them, leading the mules into the barn where they were unloaded and bedded down.

When Jak returned home with the five Scouts, he found his front room full of curious people. Everyone wanted to know what was going to be done and how soon. Jak told them nobody knew yet, and suggested a gathering in the big hall after dinner. First they wanted to be introduced to the Scouts.

Bern introduced himself as Senior Eagle, then each of his patrol. Lem Spaski was also of Eagle rank; Arne and Jon were still short of their qualifications. Chad, who looked about Bobby's age, was a Cub. Lem displayed his personal weapons to the awestruck villagers before sending them home to dinner—each Scout carried a bowie and a hatchet, each bore a sturdy crossbow on his back and each carried a hand-blaster in a recharging holster slung at his side.

"Let us have dinner, folks," Bern finally said. "We'll see you again in an hour or so—we've got questions to ask you, too."

For three days the Scouts did not leave the canyon, but performed regular workouts during the morning hours and spent afternoons inspecting and critiquing some important constructions, including the carefully maintained duct which ran down through the center of the village. Its steady flow sprang cool and clear from a pipe at the north end of the canyon.

Evenings they studied maps of the area and talked with people who knew the ruins at Citivist. George Mendez, Jak's next-youngest son, was familiar with the tower to an extent that seemed almost a local byword. He sketched the basic plan of the structure, indicating its layout, orientation, and which stairs were still open since the quake four years ago. Each of the Scouts questioned him intently on the building and its surrounding terrain.

Later Bern and Jak smoked together on the flat roof of the house, and talked.

"Fine boys," Bern said.

"Thanks. I raised them myself the last nine years. Their ma was killed in a mudslide the winter of '29. The year before the locusts came. They're named after the Four Martyrs."

"One of them might like to come back with us—we could arrange to give him a few preliminary tests before we leave. Have any of them shown an interest in our kind of work?"

"I keep them pretty busy here. They'll be taking the sheep north to Wilson this fall. Five hundred head last year. That's how we can afford to hire you—we sold a good wool harvest in Dago a few months ago."

"If we can catch these rats underground, we may salvage enough undamaged gear to cover some of the expenses."

"When are you going? The next delivery is in two days."

"Tomorrow would be as good a day as any. We're rested up and ready to go. Middle of the morning would be the time to catch them napping. You should understand, we may not make any attempt on their stronghold directly—you have no idea how it might be defended. But we will be prepared to carry through."

The next morning Jak stood with them at the crest of the hill and pointed west along a rutted track. "The tower's at the end of the ridge; good view of the plain. Nothing else near as big anywhere around. We leave the food outside the door on this side. We thought about putting poison in it, but if it didn't get them all at once we could have trouble."

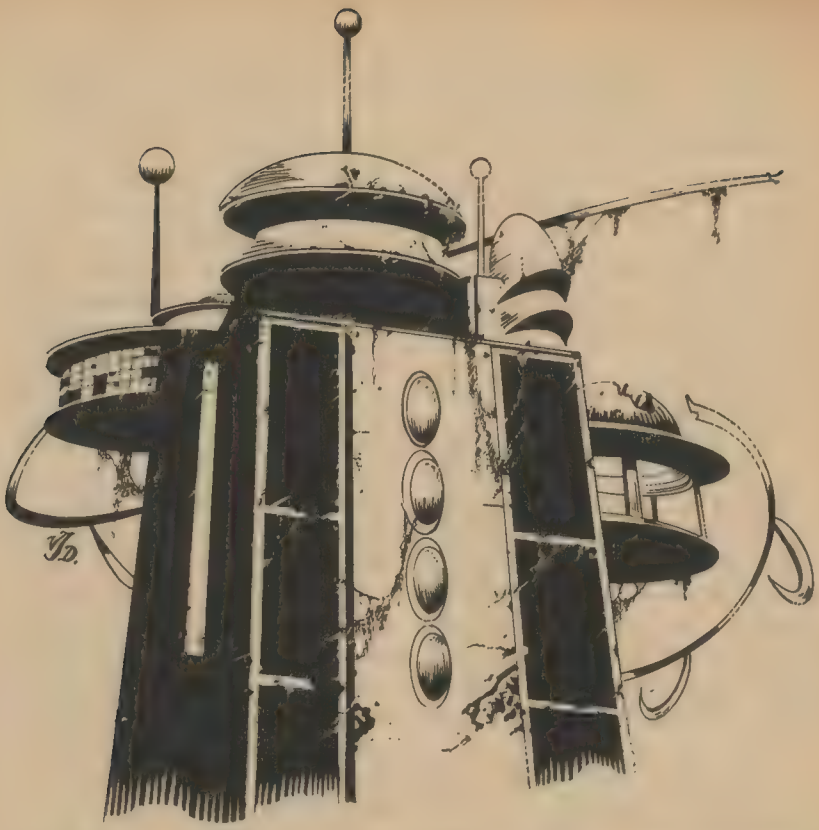
Lem nodded. "Leave this sort of thing to professionals," he said. "If we catch them all together, we should be able to clean them out neatly. Think we'll be back for dinner, Bern?"

"Should be. We'll see you then, Jak. You go home now, and don't worry about us. You won't have to bring a donation tomorrow."

The patrol slipped silently among the tall grasses. Invisibly they divided to either side of the ridge, Lem and Arne to the north, fifty yards from Bern, followed by Jon and Chad along the south lip of the hill. They communicated now by short-range zister handys which drew only microscopic power for listening; the transmitter was keyed momentarily in coded patterns of clicks unless the situation warranted use of a sustained voice signal.

The Scouts advanced cautiously, examining grassy mounds where a rat might lurk, stepping lightly over an occasional gaping crack which opened into black depths, studying a stub of corroded metal which jutted from the dirt like a bare, fungus-crusted tree.

The sea-scented breeze passed among the grass less silently than they, moving with its easy ripples. The wide crest of the hill was ruggedly level fifty feet to either side of a rutted track which ran out to the tower at the southwesternmost end, and around it in a full loop. On the far side, there was just enough room for a wagon between the sheer gray wall with its gaping windows and the crumbling slope of a hill, falling a steep two hundred feet to a jagged mound which sloped away another three



hundred feet to the rumpled floor. Beyond, the Ellay Plain ran ruggedly level to the misty line that was the sea; nearer, on a rise of ground four miles away, the white pillars and cyclopean walls of the Ruins were delicate miniatures.

The tower looked lifeless. Its wide entrance gaped like a cave half-drowned in the earth; twenty-five feet above the concrete wall was shattered and interior walls stuck up dark-gray against the cloudless sky. The five Scouts circled it soundlessly, coming together on the narrow ledge behind the building.

"Cellar," said Lem.

"Ventilation," said Bern.

"No watch," Chad said. "Some place else?"

Bern shook his head. "'Best place." He looked into the dimness and sniffed and listened. With the faintest *crunch* he stepped down through a window, looked around and nodded, beckoning them to follow. There was the faint scent of

recent or current human occupancy nearby; it seemed to be in the cool walls, or the inner darkness held it hidden.

Arne brought a flash out of his pack and pumped up a light. The floor was littered with dirt and cement dust; there were animal droppings along the wall; tatters of plastic were snagged or crumpled here and there. They found a stairwell with signs of use—the larger pieces of rubble had been kicked aside to leave a pathway. From below came the faint glow of artificial light and a warm draft carried the strong human smell up to them. Lem pointed up the stairs, and they filed silently towards the top.

Sunlight grew upon them as they neared the roofless upper floor, and shortly Bern and Lem looked cautiously over the edge of the stairwell at a maze of low walls and piled rubble which three hundred years had not weathered away. Nothing moved. Slowly, his crossbow cocked and quarreled, Bern stepped onto what had once been the floor of a hall. The others followed him.

A distant mockingbird shrieked at a crow; no other sound rippled the still air. The patrol spread out, a room or a corridor apart, remaining in sight of each other, except where pieces of wall still stood taller than a man. It was only a few minutes before Jon waved them together around him. There on the roof lay spread a hundred square feet of greenish black glassy metallic material, displayed to catch the maximum sunlight through most of the day. A black cable ran from one corner of the sheet down a narrow square airshaft and out of sight.

The Scouts followed Bern some distance away and then huddled for a whispered conference.

"Drawing air down that shaft and blowing it back up the stairs," said Chad.

Lem nodded. "A few gas bombs will clean them right out."

Faint voices from somewhere brought their heads around and froze them where they crouched. Someone was coming up the stairs from below, making no particular secret of the fact.

The Scouts moved silently around to gain clearer views of the stairhead from different angles. Footsteps crunched up the concrete steps, voices and laughter alternating, and seconds later a couple came squinting into the sunlight. Both were bare to the waist, clad only in loose comfortable shorts; both were dirty in a careless animal way. The girl's hair was as short and tangled as the boy's. They approached the ambush casually, unaware.

Two crossbows made a double *thunk* and the couple fell, arms and legs kicking briefly, their skulls shattered by the bolts.

Neither had been armed; there was nothing of value on either of them. They were not followed; whether they had come up to check on the solar cell, or on personal business, was problematical, as was the question of how soon their continued absence would arouse suspicion.

But action had been taken, and a fast efficient follow-through could bring success. A reconnaissance had become the battle and hesitation would gain nothing but total destruction.

Jon's pack held five canisters of Paralane Delta, salvaged from a vast store in far-distant Utah: this deadly gas was colorless, odorless and quickly fatal to humans who had not flushed their lungs with an inhalant of PDNeg. The death Delta delivered was swift and symptomless, but the gas's effect faded quickly after fifteen minutes while the Neg immunization lasted for two hours. As its protection waned, the faintest trace of Delta would cause a sharp headache. Five inhalers were taken from a box of twenty and used, then three fat gray cylinders were armed and dropped down the airshaft along the heavy cable from the solar cell.

One minute after the gas was released, Arne disconnected the cable from the power sheet and the five Scouts, secrecy set aside, raced down the stairs to ground level and outside to ring the building. Chad covered the center of the long front; Bern watched the front and north edge from beyond the corner, overlapping Jon, who waited at the corner next to the cliff in the shadow of the tower. He faced Arne along the ledge, sharing guard of the rear. Jon, the sun at his back, watched the south side with Arne and the front to Chad's left. Five crossbows waited cocked amid the grass on all sides while tense seconds passed.

Then a flurry of footsteps from within brought the hidden bows to focus on doors and windows. "Gas alarm," Bern muttered under his breath. Clad and unclad figures appeared, running for air. Crossbows fired, cocked and fired again in the seconds while targets were presented, then perhaps a dozen survivors fell back to the cover of their walls. Eight bodies flopped in the dust.

Bern slung his bow and led the dash to the doorway. He paused there to throw another gas bomb ahead of him before charging down the slope of rubble into the smoky darkness. His hatchet flashed in his right hand, his bowie swung in his left. Bright daylight from distant windows made the shadows between them darker as the rats scattered away from the spouting bomb into the deeper shadows towards the center of the building.

The gas released below would be rising through the subterranean levels, sweeping painless death to any rats who tried to hide there, and

even the upper floors would soon be filled with fading but still fatal gas. Two more rats lay on the dust-sprinkled slick metal floor to which rags of carpeting still clung in patches; the others ran stumbling farther towards the sun-shaded corner far across the vast pillar-studded open space. Hatchets spun through the air to outdistance the slow-spreading gas, and more rats fell.

Concerned now with saving their individual hides, the survivors fled into the angle where Jon stood, the bright windows at his back. His hatchet whirled over his head, his bowie stood from his fist as he charged into the rats. The first two who came within reach fell to his steel; the third swung a nyloid-clad arm to catch the descending knife and let the hatchet glance harmlessly from his helmet. Jon broke away as the streetsuited rat bore him to the floor, and rolled clear in the dust, springing to his feet and snatching his charged blaster from its holster.

The suit absorbed the bolt, though its owner staggered back against a column. He snapped open a case at his belt before Jon could ready his bow, and a spring-loaded needler snapped. Jon's hand clutched reflexively at the trigger for a second before he coughed weakly and crumpled.

The rat leaped forward to pick up the recharging blaster and fired into the darkness behind him. Chad gasped and fell aside as the half-powered bolt clipped a column beside him and droplets of molten metal splashed across his right arm, then Bern and Arne fired together. The corner of an empty lift bay exploded in stony fragments and white dust, but the rat was gone, and the others were gone with him.

Silence settled echoing between the floor and ceiling, and the sound of footsteps, hurrying to Jon, whispered away towards the distant ring of windows. The recharging blasters made a faint rising whine. Chad came behind the others, lips clamped, his left hand fumbling in his aid kit for burnbalm. He was smearing it on, slumped against a pillar, as the others knelt by Jon's body. Bern looked back.

"Chad—clean him, take the gear back to Sereno. Send a party to pick him up, bring five men after us. Can you still shoot?"

Chad nodded. "Left-handed. Balm's working."

Lem came back from the rear windows. "Six of them," he said. "They're heading onto the plain—either towards Griffith Hills or the Ruins."

"Let's go."

They took off like sprinters for the window, hatchets and bowies resheathed. Away down the hill six figures hit the level ground and started across the scrub grass and sparse brush towards the southwest. In great sliding leaps the three

Scouts came down the face of the hill after them.

Blaster bolts sizzled across the distance between them, but dissipated well short. The Scouts, reaching the foot of the long slope, concentrated on the sustained chase. Trained, conditioned, disciplined, they ran steadily over the hummocky ground towards the dusty trail down which the rats were already fleeing.

The grass was nearly waist-high, but thin and dry with snagging seedpods along its stalks; the few foxtails caught by the uniforms found no loose texture to hold and dropped almost at once. The road itself was no more than a faint double rut, cracked and bare with taller grass in the middle. It led nearly four miles southwest to the Ruins.

Heads up, running like machines, the Scouts chased the rats, narrowing their lead from two hundred yards to one hund ed before they were halfway to the Ruins. Then a blaster bolt warmed their faces, and they slacked their pace to match their quarry. The rats wouldn't care to make a stand out in the open—not at only two to one. But they couldn't flee forever. They would want to hole up in the Ruins, and would probably make their last stand there.

Now, any Scout's pause to fire would cost distance at the edge of his range, and any attempt to continue closing would result in more effective fire from their foes. Holed up, the rats could be encircled and wiped out by training and technology. Morovia would be avenged, Jon's blaster recovered and his life paid for.

The road was hard and level, though moderately meandering, and the distant figures of the rats remained clear above the grass. Then the ragged group vanished briefly behind a tall corner of mottled stone and rusted steel where the road bent around a large shallow craterlike pit. When they reappeared, they ran more tightly bunched, but six sharp eyes saw at once there were now only five rats a-running. Lem split off to the right around the far side of the collapsed substructure, running silently and low among the grass and slipping from rock to rock as Bern and Arne continued up the road.

One rat was probably waiting behind to shoot them from cover—if so, he might well have Jon's blaster. As they approached, they left the road and came close against the side of the monolith. At the corner they looked cautiously around.

Nothing in sight. Bern stepped out from cover and waited. Scout blasters had no sights, being aimed by instinctive coordination of hand and eye; without this training behind it, the weapon would be relatively inaccurate. A dazzling flare burst against the wall a foot to his left and knocked him sprawling. Answering bolts of steel snapped

from two crossbows at opposite ends of the new-scarred wall, and there were no more shots. The two Scouts hurried out to retrieve their quarrels and the blaster, and dragged the body of the rat out for the follow-up party from Sereno to find and clean of whatever he might have carried.

Bern picked himself up, wincing slightly at the deep ache in his left leg. It wasn't broken, but the concussion had given him a deep bruise which would slow him down in a little while.

He walked painfully after his partners. "Dig in and spot them," he said. "Wait till I get there to formulate."

They nodded—as senior Eagle he was expected to be responsible in every strategic decision. Let the rats hole up and wait; it would only dull their nerves and drive them closer to panic. Arne and Lem slung their bows and trotted off after the five now-distant rats who were still running, aware their trap had failed and aware of the irretrievable loss of their last stronghold. There were no places of safety to which they could flee, no communities where they could pass for refugees or derelict streeters.

They could have no hope of escape, yet still they ran. And after them, like loping angels of death, came Arne and Lem. The rat they had killed in the grass had not carried a needler; nor had he worn a streetsuit.

More slowly and farther behind, a hype from his aid kit easing the pain and congestion in his leg, Bern followed. His smooth stride kept the muscle from cramping, and he had only a mile to go when he heard three spaced clicks from his handy. He touched it at his belt, clicking the carrier once. Then a voice spoke quickly.

"They're down and covered."

Bern brought the unit to his lips. "Ten minutes," he said, and clicked the pattern requesting navigational data.

When the Scouts were together below the crest of the round hill where the Ruins stood, Lem outlined the situation.

"They're pulled in behind that first row of columns. They probably don't know how to get down to the parking levels. We can surround them on the main floor area."

Bern nodded, and the three of them started silently up the rubbly slope towards the great level stone floor, its warps and buckles concealed by wind-drifted adobe-clay. Here and there walls stood—thick, braced walls with fine patterns carved deep in their still-gleaming surfaces, uncorrupted by the centuries. Rain-soaked soot still lingered in the stones, in cracks where lichens did not reach; a great arc of dull white carving lay like a rocker sixty feet long, both ends jagged and weathered, with no

matching curves as of a broken circle remained to indicate how it had stood. Locally it was called *Chandlers Chair,* and it was said that a sufficient force of men had rocked it.

As the Scouts crept past the line of columns and fallen pillars, the true size of the place began to open around them. The village of Sereno would have fit, with stables, corrals, orchards and gardens, into one quarter of that great level mesa where fallen monuments to the past lay crumbling. And from the midst of that silenced splendor, a blaster bolt flashed among them and seared some square feet of stone clean of lichen.

Lem took off to the left; by understanding, as Bern's junior he took over responsibility of movement. Bern wasted one bolt to keep the rats pinned down while Lem tried to spot their exact location. A minute later his handy clicked.

"Wall. Ten degrees right. Under this end of the Chair. Arne go right. Three minutes."

Bern clicked acknowledgment as Arne moved off. He shifted position closer and wasted another bolt when the flash of an incautiously extended head presented itself momentarily—this battle was not likely to be settled by blaster bolts, but hand to hand. And for that the range must be closed.

The rats had gone to ground behind a row of angled slabs which thrust from the floor almost forty degrees off perpendicular, lying partly supported by a section of solid wall. Under this slotted, slanted roof they huddled, desperate and deadly. Bern saw this as he moved, and clicked his handy.

"Come from above," he said, and his partner clicked back.

By climbing the inner face of the *Chair,* Lem could come out twenty feet above and behind the rats and fire down on them. Arne would be concealed forty feet in his direction from them waiting for either Eagle to open the attack. Seconds passed.

Then a bolt spat from the far end of the sheltered space and splashed against a fallen pillar behind him. Bern rose to his feet and fired. Flame licked around one end of the slanted wall and a cry told him of a glancing hit, or near miss, as he ducked down again, his ear cocked to the sound of his blaster recharging. The blaster, salvaged from the rat they'd killed on the road, stuck from his pocket, still charged; it could serve as a backup.

Lem's crossbow snapped from above and behind the cluster of rats, and a half-charged flash of energy dissipated in the air. Then Arne fired from cover and moved. A quarrel should penetrate a street-suit at moderate range, and only one of the rats was so protected. Bern took advantage of the distraction to move closer, angling for a shot through one six-inch crack in the bastion.

He knelt, his leg nearly numb and clumsy, and braced the bow across the lip of a dust-filled fountain. In the deep shade behind the gap he saw indistinct shapes moving too swiftly to waste a shot. Back and forth; he waited patiently; fingertip light against the trigger. As a shadow paused blocking the slit, he stroked the release and felt the bow jump against his shoulder like a captive rabbit. The bolt passed directly into the narrow opening, vanishing without a sound, and the shadow fell away leaving the space clear again. No further targets presented themselves.

The rats' blaster would be charged up by this time. Even though the crossbow fire must have attenuated their numbers they held positional advantage, and the Scouts hesitated to press the attack.

Silence returned to the ruins—a tense, waiting silence. A gull flashed white overhead, and warm wind whispered around the fallen columns. Bern gauged the distance to another block of white marble and estimated his chances. The rat with the blaster could only be looking one way at a time, and the needler was a short-range weapon. Five seconds in the open would be too long, but Lem could distract them. He secured his weapons and clicked a question on his handy.

"Four left, one wounded," it answered.

"Good. Count five and cover.'"

On the click of acknowledgment Bern rose to a crouch and started counting silently with measured cadence. One—two—three—four—five . . . The snap of Lem's bow sent him on a clumsy four-legged scramble across a bare twenty-five feet of sparse stunted grass which grew unhealthily among the cracked marble slabs. He barked his knuckles across a jutting corner and his hand slipped. His shoulder hunched as he twisted reflexively to land rolling, and a lance of flame turned a long oval of crumbling stone to steaming white lava which seethed for a few seconds before the bursting bubbles froze in brittle froth. By then he was under cover.

Arne had taken the opportunity to advance seconds after Bern. The ring tightened.

The group of villagers with Chad in the lead should arrive within a quarter hour. A containing action would be adequate at this point. But professional pride preferred that not a rat be left alive when reinforcements did arrive. He clicked for Lem.

"Three left, one wounded. Try bounce shot—left end."

The indicated end of the rats' shelter was warded by a four-foot wall of stone, faint abstracts etched in it, angled partly across the opening. From his new position he could fire a bolt which would splatter rock and enough heat to cause some damage in the protected area. He cocked his bow, slung it ready and gave the sharp, rising attack

whistle and fired his blaster into the wall.

Second blaster in hand, he scrambled forward to the smoking, half-slagged wall, fell flat to the stone and fired into the rats' hole. Crossbows snapped above and ahead, and one more flicker of intolerable brilliance lanced just over his head and warmed his back like the sun for an instant as the wall behind him puffed steam. In a single swift movement he brought his bow into position with a quarrel in its slot and fired into the one figure left standing, a discharged blaster in his hand and a streetsuit helmet around his head.

Another quarrel from the opposite direction struck the figure almost simultaneously, spinning him around and ripping through the tough nyloid. The rat flopped to the ground, kicking for only a moment, across the burned body of another, and as echoes of unheard shouts died the only sound in the stillness was the harmonic lifting chord of recharging blasters.

Bern rose to his feet and limped forward, bowie ready in his fist. Arne came toward him through the settling dust, prodding cautiously at the bodies with his toe.

Lem's head appeared above them on the lip of *Chandler's Chair*. "That's it," he said.

"Streetsuit's wrecked," said Arne critically.

"Merit point for the kill," said Bern. "It may be repairable."

He bent awkwardly and picked up the blaster from a limp hand just as the whine cut off. He switched the circuit to safety and spent several seconds examining it before he nodded.

Lem came around the curve of graven stone as Arne found the spring needler and held it up. "I wondered why this wasn't being used," he said. "Now I think it may have been."

The flat magazine opened to show the "needles"—instead of gleaming perfect lines of steeloy, it was half filled with strands of bright copper, salvaged from ancient wiring, cut to length and painstakingly worked to near-microscopic straightness. Lem winced. "Rough on the barrel! Half price for salvage."

"They'll be here soon for the accounting," Bern said. "I don't think they'll feel cheated." A line of dust, distant and white behind a wagonload of villagers, rose along the road from Sereno, coming to carry them back. ■

The immense complexity of modern food and drug technology requires the existence of some kind of policing agency—an F.D.A. of some sort. But an overprotective agency—like an overprotective mother—can prevent growth and development that's essential. This can be as much an evil as a neglectful or abusive parent!

Hazel Mosely

A CASE OF OVERPROTECTION

In early August, 1967, a forty-four-year-old woman suffering from abdominal pain was admitted to a hospital for observation. Her doctor already suspected what was wrong with her. Three years ago she had had a cancerous breast removed.

Exploratory surgery confirmed his suspicions. The woman's abdomen was studded with cancers and her condition was inoperable. There was nothing the doctor could do except close the wound and try to make his patient's last weeks comfortable.

The woman grew steadily worse. She was in constant pain and she couldn't eat. Her weight dropped to 86 pounds.

Then on September 13th, the doctor tried giving her haematoxylon in combination with a new drug called DMSO. Two weeks later, the patient was walking around the hospital corridors, free from pain. By November 15th, her weight was back to her normal 117 pounds. She was dismissed from the hospital and resumed her normal life.

In the same hospital, a twenty-four-year-old woman had an inoperable bone cancer in her thigh. She, too, was treated with a combination of haematoxylon and DMSO and her pain quickly disappeared. Then, four months after treatment began, incredulous doctors compared before and after X rays of the cancer. Not only had

the cancer regressed, but *the damaged bone tissue was repairing itself.*

Research scientists are normally a sober lot not given to superlatives. But they're calling DMSO —dimethyl sulfoxide—a miracle drug. Many believe that this humble by-product of the paper-napkin industry is an entirely new principle in medicine. It penetrates human tissues with ease, and, what's more, it can carry other chemicals with it.

DMSO is an easily synthesized organic compound which is found in lignin, the substance which holds trees together. There's a lot of it left over from the pulp manufacturing process, so it's cheap and readily available. Before its medical properties were discovered, it was used as a commercial solvent.

It was in 1963 that DMSO's medical properties were discovered by Robert Herschler, chemist for the Crown Zellerbach Corporation, and Dr. Stanley W. Jacob of the University of Oregon Medical School. Soon afterward, doctors began using it in clinical tests to treat a wide range of diseases from crippling arthritis to creeping eruptions.

It was especially helpful in chronic bone and joint conditions, such as bursitis and several types of arthritis. Grateful arthritic patients reported that DMSO treatment relieved pain and crippling and, in some cases, even seemed to halt the progress of the disease.

DMSO could visibly reduce swelling from bruises and sprains while the patient watched. A happy baseball coach found that his injured players were able to return to the game in one third the time when treated with DMSO.

And DMSO was the only effective treatment known for a progressive, ultimately fatal skin-hardening disease called scleroderma.

But that was only the beginning. DMSO's potential uses read like something out of Dr. McCoy's Starship dispensary. Various experiments showed that it might:

- make the needle obsolete for intramuscular injections. Vaccines and medications were absorbed directly through the skin when mixed with a little DMSO.
- provide deeper and longer-lasting local anesthesia through its nerve-blocking properties. This would eliminate the need for general anesthesia in some kinds of surgery.
- relieve pain following surgery. A study of patients who had just undergone chest surgery showed that those who received 50 to 80 per cent solutions of DMSO applied to their incisions required less morphine.
- increase sensitivity of drug-resistant strains of bacteria. In one experiment, a resistant strain of tubercle bacteria was unharmed by 2,000 units of streptomycin. But it only took 10 units of the antibiotic to kill the same strain

after it had been pre-treated with a weak solution of DMSO.

DMSO seemed too good to be true. Although no one was claiming that it cured colds, one researcher found that a little DMSO rubbed on a sinusitis victim's nose relieved pain and congestion in all eight cavities.

And all this came about without a single serious side effect in two years of extensive testing on human beings. Most frequent reactions in DMSO users were localized skin rashes and a characteristic fishy breath odor. But nobody was complaining, except one UCLA athlete who said he lost his girl when his DMSO treatment gave him bad breath.

Then, bit by bit, evidence mounted that DMSO might be effective against many types of cancer. Dr. Ernest Ayre of the National Cancer Cytology Center, New York, reported that DMSO improved several cases of cervical cancer. Drs. Schred, Elrod, and Barta told the New York Academy of Science about their study showing that DMSO was more toxic to leukemic white cells than to normal white cells. Drs. Seibert, Farrelly, and Shepherd, using 27 varieties of bacteria isolated from human cancers and leukemic blood, found that DMSO killed all 27 kinds without harming red blood cells. Clearly, further tests with DMSO were indicated.

But on November 25, 1965, the Food and Drug Administration arbitrarily banned all clinical testing of DMSO. There was too much "half-baked" testing going on, said Dr. James Goddard, FDA commissioner. Later, the official position of the FDA was to say that the ban was imposed because of the question of safety. Several experiments found lens changes in the eyes of laboratory animals. But no such lens changes had occurred in humans after two years of clinical tests.

Both drug companies and researchers cooperated voluntarily with the FDA ban. DMSO was a prescription drug in Germany at the time, and it was withdrawn from the market by its distributor until the lens damage question could be settled.

Extensive testing showed that DMSO, like many other drugs, seems to react differently in different species. When dogs, rabbits, and pigs had large oral doses of DMSO, they developed lens changes. However, rhesus monkeys failed to develop lens changes even after six months of daily oral doses of 11 gm/kg. The average human dosage was 0.1 to 0.2 gm/kg administered topically, not orally. No animals developed lens changes when given the human dosage topically.

This was enough to convince an international symposium held in Vienna. Dr. Chauncey D. Leake, a

University of California pharmacologist, summed it up in a report of the symposium for *Science:*

"This meeting established that after two and one half years of clinical therapy with DMSO, it remained a substance of low toxicity."

DMSO was soon back on the market in Germany, and was approved for marketing in Austria.

But Dr. Goddard and the FDS remained unimpressed. A year after the initial ban, FDA relaxed its stand slightly. Testing could resume, it decreed. All the investigator had to do was:

1. Restrict studies to cutaneous (topical) applications in serious conditions for which no other effective treatment exists.

2. Conduct studies only in large medical centers.

3. Conduct extensive blood and liver function tests every four weeks, and eye evaluations by an opthalmologist every three months.

4. Obtain *advance approval* for the study from the FDA.

Just how much protection against new drugs does the American consumer need?

Plenty, according to FDA. Even your own doctor, it says, doesn't always know best when it comes to prescribing drugs to cure what ails you. But a growing chorus of Americans are saying that the consumer can no longer stand the FDA's kind of protection. Dr. Jacob charged that if the FDA had acted toward cortisone, or penicillin, as it has toward DMSO, then those drugs would not have been available to the public for at least twenty-five years after their discovery.

"Under the current law and its interpretation, were the cure for cancer discovered tomorrow, it would not be available as a prescription drug in the United States for at least seven years," he said. "How many people would needlessly die of cancer while the drug was going through FDA red tape?"

DMSO is not the only drug to be caught in this web of red tape. The average time it takes for the FDA to approve a new drug is two years and the average is going up.

In 1965, Ciba applied for approval to market desferrioxamine, the only known cure for iron poisoning. The life-saving drug was already a prescription item in twenty-two countries and had been tested here since 1962. Yet the FDA took two years and nine months to satisfy itself that the American consumer could tolerate an antidote for iron poisoning.

But this was dizzying speed compared to the fate of Zyloprim, a new treatment for gout. Its approval took five years to process.

Then there was the case of tegritol, a drug which relieves the pain of a devilish torment called tic douloureux. Tic douloureux feels like a dentist is constantly drilling

on an undeadened tooth. Its victim had only two choices for pain relief before tegritol: narcotics in dose large enough to cause addiction, or surgery which left the jaw permanently numbed like a dentist's nerve block. It took the FDA six years to release tegritol.

But far more serious than drug-approval delays is the implication in the FDA's requirement of advance approval for medical experiments. This means that the FDA has the authority to exercise what Dr. Jacob calls "scientific censorship."

When the FDA announced its "relaxed" rules for testing DMSO, outraged researchers appealed to their Congressmen, the American Medical Association, and anybody else they could think of. Patients who had been helped by DMSO, when nothing else worked, wrote impassioned appeals to the FDA. Newspapers blasted the decision editorially. But the FDA stood as unmoved as a crooked justice of the peace in a small town speed trap. It had the authority to make the rules and to enforce them as well. It could say to the researchers and the drug companies, "Play my way or don't play." The result was predictable. Just at what began to look like the dawn of a major breakthrough in cancer chemotherapy, DMSO research in this country came to a virtual halt.

How could it have happened? How had the FDA gained the power to dictate the terms of medical research?

Well, like many of our bureaucracies, it began modestly to fill a vital need, then just grew and grew.

It all goes back to Teddy Roosevelt. Concerned legislators had been calling for federal food and drug regulation as far back as 1869. The need was obvious. Respectable women were becoming addicted to the opium in a popular headache powder. Food was routinely preserved with formaldehyde. "Strawberry" jelly was made from rotten apples, flavored, then colored with poisonous analine dye. Meat was so diseased that much of Europe refused to import it from the United States. But Congress, dominated by legislators who maintained a traditional attitude of hands-off big business, was able to block effective legislation for forty years.

Then Teddy Roosevelt breezed into the White House with his big stick and his habit of reading at meals.

The story goes that one morning TR was eating his breakfast sausage while reading Sinclair Lewis's new book, "The Jungle." The book was a blast at the meat-packing industry and Lewis graphically described the standard recipe for sausage, which included rat-infested scrap meat complete with rats and even a few thumbs from careless butchers.

TR, they say, jumped up from

the table clutching his throat and gasping, "I've been poisoned." Then he rushed out and rammed the Food and Drug Law through a reluctant Congress.

It didn't really happen just that way, but Roosevelt, along with the public outcry brought on by Lewis's book, is given a large share of the credit for the passage of the Meat Inspection Act of 1906. The Food and Drug Act was passed the same day, largely because of the momentum TR created.

The 1906 law was primarily concerned with accurate labeling of contents in food and drug packages. It didn't matter what was in them, or how useless they might be, as long as they were properly labeled. Unfortunate wording on an amendment made possible all sorts of wild claims on the labels. Concoctions could legally be advertised to have marvelous curative powers. The law read that therapeutic statements were illegal only if they were both false *and* fraudulent—simply false or even flagrantly fraudulent weren't enough. To prove both turned out to be almost impossible.

Through this loophole crawled such "cures" as "Brewster's G.D. (Germ Destroyer) Treatment for Tuberculosis of the Lungs, Tuberculosis of the Bones, and Asthma." It was actually a mixture of turpentine and kerosene.

The FDA brought the manufacturer to trial but didn't get very

DEPARTMENT OF DIVERSE DATA

GASTRO-INTESTINUS DIAPHANUS or "GLASS GUT"

E. T. from Polaris IV, quite friendly as long as you keep him well fed. A favorite object of research among E.T. biologists, since no X ray is required to study his metabolism.

far. The contents were accurately labeled, and the manufacturer found plenty of satisfied users to testify to the accuracy of the advertising claims. In fact, the testimony was so convincing that one of the jurors wound up placing an order for some of "Brewster's G. D."

The law needed beefing up. Bill after bill was presented to both legislative houses, but each died a quiet death. Once again, it took aroused public opinion to move Congress off dead center.

This came about in 1937 when a new product was marketed called Elixer Sulfanilimide. Sulfanilimide had been sold in capsule form for some time, but some people didn't like to take pills. So the company decided a liquid form would increase sales and they put their pharmacist to work on it.

The drug turned out to be insoluble in most commonly used liquids, but finally the company pharmacist discovered that diethylene glycol worked fine.

It was the diethylene glycol, not the sulfanilimide, which killed 106 people. Well, actually it was 107 if you count the company pharmacist who later committed suicide.

The FDA ordered immediate seizure of the stuff when it heard of the first deaths, but it was hard pressed to find legal grounds to justify the seizure. Finally, the FDA decided that the word "elixer" implied an alcoholic solution. Since the product contained no alcohol, it was mislabeled. But had it been called "Solution Sulfanilimide," the deadly concoction would have been perfectly legal.

The resulting Food, Drug, and Cosmetic Law of 1938 required that new drugs must be *proved safe* before they could be marketed. Among other provisions, the FDA had the responsibility for approving applications for marketing new drugs. This application, filed by the company seeking to market the drug, had to include information on clinical reports of investigations proving the drug's safety. Applications were automatically approved in 60 days unless the FDA officially postponed the decision in writing.

The new law survived in pretty much the same form for 15 years. Then the late Senator Estes Kefauver, disturbed by fifty-cent-a-capsule antibiotics, decided to investigate what he suspected was price-fixing among the large pharmaceutical firms. In a series of sensational televised hearings in the late '50s, Kefauver's Subcommittee on Antitrust and Monopoly uncovered fantastic mark-ups in drug prices. Miltown tranquilizers cost Carter Products seven-tenths of a cent to make; the consumer paid 10.8 cents. Orinase, a drug for diabetics, cost Upjohn 1.3 cents, the diabetic 13.9 cents. Polycycline, an antibiotic produced by Bristol-Myers, jumped from 1.7 cents to

50 cents from manufacturer to patient.

The investigation also uncovered evidence that the companies were marketing ineffective drugs, and selling them to the doctors through tremendous outlays for misleading advertising. The advertising, usually appearing in medical journals, was followed up by "detail men," the company's salesmen who pushed the products right in the doctor's office.

The AMA bristled at the thought that doctors could be sold on ineffective drugs, but individuals testified that it could be done. Dr. A. Dale Console, formerly Squibb's medical director, was one who charged that useless drugs were being successfully marketed.

"If an automobile does not have a motor, no amount of advertising can make it appear to have one," Dr. Console testified before the subcommittee. "On the other hand, with a little luck, proper timing, and a good promotion program, a bag of asafetida with a unique chemical side chain can be made to look like a wonder drug. The illusion may not last, but frequently it lasts long enough. By the time the doctor learns what the company knew at the beginning, it has two new products to take the place of the old one."

So after months of testimony, Kefauver submitted a bill to Congress which provided for stricter advertising controls and the requirement that a new drug must be proved both safe *and* effective before it can be marketed. To assure lower prices, there was also a compulsory licensing provision. This meant that a patent-holding company would have to license any other qualified company to make the patented drug, thus breaking up monopolies on a particular drug.

Kefauver's bill suffered the same fate as so many of its predecessors through the years. The public was mildly upset about high drug prices, but the country was booming and inflation was everywhere. The man in the street was resigned to paying higher prices for everything. There was no widespread indignation loud enough to be heard over the voices of the well-financed lobby representing the drug interests in Washington.

It took another disaster to move Congress, and this time it made the 107 sulfanilimide deaths look insignificant by comparison. It was, of course, the thalidomide disaster which left thousands of grossly deformed babies in Europe.

That the treacherous sedative had not been released for sale in the United States was largely because of Dr. Frances O. Kelsey's feminine intuition. Dr. Kelsey was the FDA officer in charge of the Merrill Company's application to market thalidomide. She was disturbed over reports in a British medical journal about some long-term thalidomide users who had

developed peripheral neuritis, a tingling sensation in fingers and toes.

According to the 1938 law, the application would be approved automatically in 60 days, but Dr. Kelsey stalled Merrill, saying that she needed more information. Soon the terrible truth about thalidomide broke, and Dr. Kelsey was a national heroine.

Now the public was clamoring for tighter drug restrictions and the Kefauver-Harris Drug Amendments were passed on October 10, 1962. Congress tried to include in the new law enough authority for the FDA to assure that another thalidomide disaster couldn't happen. Drugs had to be proved both safe and effective, and the FDA had almost unlimited discretion in determining what constituted proof. The 60-day approval limit was withdrawn. Ironically, the amendment as passed did not include Kefauver's compulsory licensing provision which might have lowered drug prices.

Few realized at the time that the FDA's new authority could and would be used to slow down vital cancer research. Yet that's exactly what has happened in the case of DMSO.

"The FDA has created a climate which to date has made it impossible for the interested pharmaceutical firms to reinstitute studies," said Dr. Jacob when the FDA announced its "relaxed" restrictions on clinical testing of DMSO. "The FDA created this climate by sending their inspectors on a massive witch hunt throughout the United States following the cessation of testing (in 1965). These inspectors harassed investigators and the drug firms alike who had evaluated DMSO," he said.

This harassment went so far as surprise searches of laboratories by the FDA inspectors. Researchers and drug companies were threatened with criminal prosecution although no charges were ever filed. Even researchers whose work with DMSO was confined to experimental animals had trouble. They were required to sign statements swearing that they would use their DMSO only on animals. Even then, some felt that their DMSO shipments were sometimes unnecessarily delayed.

At least one cancer researcher solved the harassment problem by moving his experiments out of the country. He treated 37 inoperable cancer patients with DMSO in combination with other drugs. Two of those patients were described at the beginning of this article. Twenty-three others were still living two years after treatment. This was an improvement rate of 38.1 percent. Without DMSO, the improvement rate was 5.4 percent, Periodic eye examinations showed no lens changes in any of the patients.

The name of the doctor who performed these experiments may deserve to live on with greats like Pasteur and Salk. But it can't be mentioned here. He's back in this country now and he fears FDA reprisals.

In September, 1968, Dr. Goddard resigned as FDA commissioner and Dr. Herbert L. Ley, Jr. took his place. The advance approval requirements for testing DMSO was eliminated and the periodic blood tests and eye examinations were required at more reasonable intervals. But it was no closer to being approved for marketing than it was back in 1965.

The FDA had emerged unscathed as judge, jury, and executioner in drug matters and lasting ill will had been created. Representative Wendell Wyatt and Senator Mark O. Hatfield, both of Oregon, are among many who feel that the entire machinery of new-drug evaluation needs to be changed.

"Since the Kefauver amendments were passed, the FDA has grown from a small, ineffective agency into a monster bureaucracy," said Wyatt. "In investigating the reasons for the delay of (DMSO) I discovered that it was not a lone case of persecution, but that FDA delay and political sensitivity seemed to be the rule, rather than the exception."

Wyatt and Hatfield have introduced legislation into both Houses which would strip the FDA of the authority to evaluate new drugs and give it to a committee of scientists under the supervision of the National Academy of Sciences. A similiar plan has been in effect in Great Britian since the thalidomide disaster, with impressive results.

In a speech before the House of Representatives, Wyatt pointed out that the British Committee on the Safety of New Drugs has a permanent staff of twenty-five people, and a budget of less than $200,000 a year. Yet in 1966, it examined 1,004 drugs and passed 771. In 1967, it examined 888 drugs and passed 698.

But the FDA has a permanent staff of over 400 people involved in the evaluation of drugs and a budget of $4,500,000. In 1966, FDA examined only 147 drugs and approved 40. In 1967, they examined 335 drugs and passed 100.

"That makes the British system approximately 112 times as efficient as our own," said Wyatt.

At this writing, Wyatt and Hatfield bills are stalled before their various committees with no hearings scheduled.

No one wants a repeat of the thalidomide disaster. But the cold, hard truth is that no amount of legislation, or regulation, can insure the complete safety of a new drug. Animal studies are valuable only to a point. They can indicate

a probable human response to the drug being tested, but many drugs react differently in different species. In the final analysis, only human beings can prove that a drug is safe for human beings. And even human testing can fail.

Human beings had used thalidomide for over four years before its fetus-deforming properties were recognized. And, except for a few thousand pregnant women who took the drug at just the wrong time, all those human beings proved that thalidomide was just what it appeared to be: a safe, effective sedative.

Then there's the problem of individual differences in body chemistry which makes a widely tolerated drug a deadly poison to an unlucky few. Almost everyone knows someone who is violently allergic to penicillin.

The only way to insure the complete safety of new drugs is to have no new drugs. And it's a matter of record that the number of new drugs approved by the FDA has declined 80 percent since 1957.

The people who are calling the present system of drug controls intolerable are not the nineteenth century quacks who peddled "Brewster's G.D." They are highly qualified professionals who are fully aware of their responsibility to society. One is Dr. Louis Lasagna of Johns Hopkins University School of Medicine.

"No one wishes to trample on the rights of human beings, but it would be cruel indeed to trade theoretic civil libertarian gains for actual public harm from failure to develop new drugs," he said. "Our job is to maximize the benefits while minimizing the risks."

Medicine has come a long way in the United States since the hero of San Juan Hill started the campaign for consumer protection back in 1906. How much further it goes might well depend on researchers' freedom from the FDA's overprotection.

SOURCES CONSULTED

1. "The Congressional Record—House," March 6-9, 1967, March 13, 1967, Nov. 27, 1967, Nov. 29-30, 1967, Dec. 5-6, 1967, June 17, 1968, Sept. 16, 1968, Feb. 6, 1969, April 14, 1969.
2. The Crown Zellerbach Corp., "Dimethyl Sulfoxide Technical Bulletin."
3. Damerow, Rev. Ronald D., personal correspondence.
4. Grigsby, Dr. Frederick J., personal correspondence.
5. Harris, Richard, "The Real Voice," Macmillan, 1964.
6. Hatfield, Senator Mark O., personal correspondence.
7. Jacob, Dr. Stanley W. and Don C. Wood, PhD, "Dimethyl Sulfoxide (DMSO)—Toxicology, Pharmacology and Clinical Experience." American Journal of Surgery, *Sept. 1967.*
8. Mullendore, William Clinton, "A History of the FDA, 1917-1939."
9. Scholes, Dr. Vernon, interview.
10. Tucker; Dr. E. J. and A. Carrizo, "Haematoxylon Dissolved in Dimethyl Sulfate Used in Recurrent Neoplasm." International Surgery, *June, 1968.*
11. Tucker, Dr. E. J., personal correspondence.
12. Wyatt, Representative Wendell, personal correspondence.

THE SIREN STARS

Second of Three Parts.
The essence of life is the packet of information that tells how to make a duplicate—for us, the DNA package. But there could be another kind of virus that "infected" simply by sending information—

RICHARD and NANCY CARRIGAN
Illustrated by Kelly Freas

"That's the trouble with this chain of reasoning—the parts are O.K., but the possibility of them making up the whole picture is too remote." Dr. John Leigh, physicist from Science Processing, Inc., was skeptical when called out to the national radio-telescope laboratory at Sunseek, New Mexico. But his boss, Dr. Silverman, and astronomer Jan Van der Pool had unimpeachable evidence. The Russian astronomer Gregori Petrov was regularly receiving a radio signal from some distant star on twice the frequency of hydrogen.

SPI's job was to keep the government informed about scientific advances around the world and SPI knew precious little about Petrov's signal. What star? Where? And above all, what did the message say? Finding the answers was to be Leigh's job.

Van der Pool was shocked at the idea of scientific spying. He did not know that Silverman was slightly sympathetic to his reaction. Silverman, too, had been shocked when the President had suggested the formation of a scientific watchdog of SPI's magnitude and more amazed that he should be asked to head it. But the President was a convincing man when it came to national security in a technical world and so Science Processing, Inc. had become a fact.

To prepare Leigh for his mission, Jan Van der Pool was to cram as much as possible of his knowledge of radio astronomy and its related computer science into John Leigh's skull. The prospect of work

ahead led Leigh, Van der Pool, and his wife Pat to Juarez and a night on the town.

If the men in the black cars had had their way, that night would have been the American's last. Trapped high in an open multi-story parking garage, Leigh had had to practically sprout wings on his little Triumph to escape in a wild chase up and down the ramps of the building. But in a chancy leap from the second story turn-around, Leigh managed to bring his startled passengers to the border and safety.

Back in the darkness of the guesthouse at Sunseek, Leigh had a chance to reflect on his unusual profession and to try, for the hundredth time, to figure out what it had to do with the scientific career he once had planned. It might not be too scientific, but it sure as hell wasn't dull, especially with what Silverman had planned for his immediate future—a "dry run" attempt to infiltrate Sunseek. Once inside he was to grab the tape from the computer that would be the American equivalent of the one they wanted him to secure from the Russian installation.

Penetration on Sunseek was accomplished with a parachute jump from a cropduster's plane. After a wait until nightfall, Leigh headed for the telescope to take pictures of the position of the dish. But then Leigh found he was not alone. He figured the other man making his way through the woods was a joker slipped into the deck by Silverman, so he dealt him out with his heavy camera. Bluffing his way into the control room, he filched the tape from the computer and headed proudly back to Silverman's office. To his surprise he found the "joker" had been slipped into the deck by a foreign hand and had been armed to destroy the telescope. Then Van der Pool dealt his pride a lethal blow with the news that the tape he'd so cleverly filched was the wrong one.

John Leigh was bored. Like the class dunce he had been sent to a remote corner of the Sunseek library, there to contemplate how smart computers were and how often study consisted of finding how much one didn't know. (Who'd have thought they'd correct their own incorrectly transcribed records with the patience of a school marm?)

The rest of the SPI group had left Sunseek to return to the home office, but Leigh had had to remain. He and Van der Pool worked harder than ever, for the attempted attack on the telescope put the stamp of urgency on their task. John sat now, hunched over his book in intense concentration. He didn't hear the quiet, motherly-looking Sunseek librarian come up behind him and jumped when she touched him on the shoulder.

"Telephone for you on the

library extension, Dr. Leigh," she whispered softly to him. John nodded and followed her to her desk. He picked up the waiting phone.

"This is Dr. Leigh."

Emily Parkway's crisp voice was on the other end of the line. "John, Dr. Silverman would like you out here as quickly as possible. Reservations have been made for you at the El Paso airport on United Flight 611 leaving in four hours. That will get you into Kennedy International about one o'clock tomorrow morning. You're set up for an appointment with Dr. Silverman at 10:00 a.m. tomorrow. Is that satisfactory?"

"All right. I'll see you tomorrow." John knew that Mrs. Parkway's last question was purely rhetorical and that as SPI knew far too much about wire tapping to trust telephones, he'd find out no more until morning. So he left the red Triumph in the loving care of the Van der Pools and was driven to El Paso in a government motorpool car.

The next morning found him rested from an uneventful flight and headed for the eastern end of Long Island on the first train out from Jamaica Station.

The headquarters of Science Processing were in one of the lovely old towns along the Great South Bay on the southern shore of the island. Though the character of these towns is changing as the great city to the west stretches its tentacles farther into the countryside, many of the sprawling, comfortable homes of the wealthy "summer people" who had been largely responsible for their prosperity still remain. It was in one of these that the main office was housed.

The huge house was situated on a little neck of land at the end of a lane in the town of Fairport. It was protected from sight on the landward side by a high, neatly-trimmed hedge of privet. Made of handsomely weathered cedar shingles, it was set on wide green lawns flowering with mimosa and shaded with old pear and peach trees. A circular drive swept under a white porte cochère. The only thing, in fact, that distinguished the estate from any other in the lane was a discreet brass plate on the gatepost reading: "Science Processing, Inc."

John paid off the cab he had taken from the commuter station and stretched happily. The Long Island office was comfortable to say the least, and if John could call any place "home", Fairport was it. It was here, too, that Silverman's large and complicated family lived in a less pretentious, but more comfortable, home of similar cedar shingles. John could always count, when he was in town, on at least one of Rachel's delicious meals served amid the peaceful confusion of three active children,

a spritely grandmother, perhaps an assorted sprinkling of friends and relations of all ages, and the exuberance of two or more dogs from the kennelful of friendly Airdales in the back yard.

Fairport had been decided upon as the ideal spot to take advantage of the presence of the many scientists who had business on the island. A large National Laboratory was nearby, as were several important aircraft companies. It was about a two-hour drive for consultants from New York and three for those from the Princeton area. And the beaches and excellent sailing on the Bay, or across the island on the Sound, were added attractions.

Leigh banged through the shuttered screen door and reported to Emily Parkway. She greeted him warmly and showed him into Silverman's office. A big black and tan Airedale rose from the rug when she heard the door open. She bounded to her friend, flopped at his feet, and rolled over on her back. John knelt to scratch the proffered brown stomach. Man and dog knew each other well and this was their standard routine. Fairdale's Brown Betty was Silverman's pride and joy and the unofficial mascot of SPI. A champion herself, she had produced three more, one of them the prized stud of Silverman's Fairdale kennel.

"That's all, Bebe. Time to go to work now." John gave the happy dog a last pat and rose.

"Welcome home, John." Silverman smiled and pulled a chair up to the desk. "Have a seat. Think you've got that problem of computers licked now?"

"I think so, sir."

"Good. It seems to me that you'll need more specific instructions in the Russian models. I've got a man coming out here from IBM to teach you the Russian version of FORTRAN. He'll be here this afternoon.

"In addition a situation's developing here that you'll need to be brought up-to-date on. I've an appointment in a few minutes with one of the key people in this phase of the operation whom I think you should meet." He glanced at his watch. "Professor Ashley should be here now."

Silverman rose and went out to the waiting room. A young woman was seated on the old windowseat—a butterscotch-tall female, straight out of an ad luring tempted men and envious women to a Scandinavian vacation. *More likely*, thought Leigh, *some Junior Leaguer, trying to raise funds for daddy's favorite hospital.* The girl's hair, neatly swept into a French twist, was the coppery color of an old penny but was now streaked by salt and summer sun. The Chanelesque suit and soft leather pumps were of honey brown, heightening the impression of a bronze statue sitting in the patch of sunlight.

The ever-objective Leigh realized that after thirty she would be waging what would probably be a losing battle with her bathroom scale. But now only a purist would complain about the spectacular figure that rose when they entered the room. Leigh gave the girl a last appreciative glance and dropped carefully behind leaving the boss to deal with the charity demands.

But to his surprise he saw Silverman take the woman's hand. "Ah, Professor Ashley, prompt as usual I see. I'd like you to meet Dr. John Leigh. Professor Ashley is at the new University across the island, John. She is one of our consultants on the current project."

Elizabeth Ashley was quite used to John's reaction. Men always seemed to look at her like that, as if loathe to believe brains of any account could reside behind those big, brown eyes. She shook his hand and smiled, waiting patiently for him to acknowledge the introduction. John checked unconsciously. No wedding ring on the tan left hand. Brown eyes set in an oval face with high cheekbones and well-drawn features. A real, unfading beauty. The eyes looked at him with the directness of a well-loved child grown into a handsome woman. Never very voluble, these discoveries left our man quite speechless.

"Professor Ashley is a specialist in Semantics and Philosophy at the University," Silverman went on. He turned to Emily. "We'll be in conference for quite a while. Will you please have lunch sent in?" Emily nodded. "When is the man from IBM due?"

"I've set up an appointment for Dr. Leigh with Mr. Coren for one o'clock," Emily replied. "Unfortunately it's only for two hours since Coren is due out at the National Lab later this afternoon."

"Well then, John, it looks as if you'll have some time to yourself."

"Good. I'll get some lunch at the 'White Horse' before Coren gets here." He looked at the large wall clock over Emily's desk and then turned again to the beautiful professor. "Perhaps we'll be through for the day about the same time. Can I convince you to stay over on the South Shore for dinner, since we're supposed to get acquainted?"

"I was planning to go to the beach for a quick swim and a hot dog," Elizabeth admitted. "It's such a perfect day."

"Then the 'coop' would be just the place," John suggested. "I'd like a swim myself and I've just got back from the desert so I'm yearning for some good, fresh seafood. You wouldn't deny a man a good lobster on his first night home, would you?"

At last the brown eyes smiled. "No, I guess that would be too cruel. If Dr. Silverman has no other plans for the rest of my afternoon,

I'd be delighted to have dinner with you. Besides, you've found a weakness of mine. I love the 'coop'."

"That's fine. I'll arrange for a car at three then."

"Oh, no, don't bother. I drove over. We can use mine."

She saw John hesitate. "Please don't be stuffy about it." The tan hand rested on his sleeve. "I'm a secret sports car addict with a brand-new MG. You wouldn't deprive a girl of the chance to drive her new MG after she's only had it a week?" she teased.

"I see we have some weaknesses in common," John grinned back. *Should be interesting,* he continued to himself, *to see how many.*

Silverman coughed discreetly behind them. "If that's settled then . . ." Elizabeth quickly became Professor Ashley again and followed him into the office. Leigh watched her go.

"Great Scott!" Emily heard him say. "What an answer to the drop-out problem. If I'd had just one professor like that I'd never have left school to join the Army." He turned to the secretary who was struggling between her amusement at his remark and jealousy at his excitement. Professor Ashley would have recognized the latter reaction, too. A woman as well endowed as she rarely elicited any other from the members of her own sex.

"Ashley, Ashley," Leigh continued. I'd swear I've heard that name before, but I just can't remember where. What's Silverman doing talking to a semanticist-philosopher anyway? Do you know what's up?"

Emily shook her head. "No, this is one of the most hush-hush deals I've been on. As for her name, you probably read the reviews of 'Deep Voices.' There was an article about her book in the *Times* Book Review section about six months ago."

"Mrs. Parkway," he grasped both her shoulders and gave her an exuberant kiss, "you're a gold mine of information and a pal. Do we still keep the *Times* in the reference room?"

"Yes, it's still there. Help yourself." Emily watched the familiar, husky figure saunter out the door to the library. *That's me,* she thought. *Ol' pal Emily.* She sighed and turned back to her typewriter. It was nearly fifteen years since Joe Parkway's name had been added to the bronze plaque on the tree-shaded monument to Korean casualties from the University.

John, meanwhile, burrowed through the *Times* stacks until he found the book section where "Deep Voices" was reviewed.

"Elizabeth C. Ashley has written some fascinating fiction about communications," the article began. It went on to describe the book, a novel about a scientist's attempt to communicate with a mystical

society under the sea. In the book she had concealed some of her more radical theories about semantics and communications. But these were so sugar-coated with adventure and a poignant love story that "Deep Voices" had been picked up by a book club and become a best seller.

More interesting to Leigh was the biography which followed the review. Elizabeth C. Ashley had been born thirty years before in southern China where her father had been a Presbyterian missionary. Her family had been home on a sabbatical when the outbreak of the war had made their return to the Orient impossible. Reverend Ashley had gone to the Midwest where he became the chaplain at a large university. His daughter was thrown into the heady intellectual atmosphere of the place. Visitors from the China days mingled with professors and students from many disciplines. Reverend Ashley and his classicist wife were a lively and well-liked pair on the campus, and they treated their children with affectionate indulgence. The little ones were allowed to take an active part in the life that flowed around them.

What the *Times* did not say, however, was that Reverend Ashley had been utterly baffled when Elizabeth's principal had called him into her office and told him that his daughter possessed the I.Q. of a high genius. With a brilliant son the good man could have coped. A genius daughter was another matter. The world did not take easily to brilliant women. They were limited in their opportunities, frowned upon by many of the men in whatever field they chose, and expected to put their genius under wraps or often endure a lonely existence as dedicated "old maids." Either solution was frustrating and Reverend Ashley prayed hard for his little girl that night.

But times were changing. It was true that some boys were put off by her reputation as a "brain," but she was so attractive and full of fun, most tended to forgive her the handicap. She edited her high school yearbook and was a prom queen as well as valedictorian when she graduated.

In college she was undecided about a field of study. Languages had been her forte and she was enrolled in Oriental Studies when she took a catch-all elective course in Philosophy during her sophomore year.

The instructor was young and enthusiastic. He overwhelmed his students with a torrent of names and theories. Only one student caught his fire. She in turn overwhelmed him with a one hundred thirty-five-page term paper on the evolution of modern existentialism. For there was no longer any doubt in Elizabeth Ashley's mind as to her future. It only remained to con-

vince a rather hard-headed and skeptical department head that a woman could be a philosopher on the grand scale.

This was done by her instructor who presented the department head in question with the term paper. It was signed only E. C. Ashley. The head was impressed. He asked to meet the author. And Elizabeth became a philosophy major.

The *Times* article ended with a brief account of the author's years as a fellow at Oxford and the wide interest in her theories on non-human languages.

John Leigh closed the newspaper and rubbed his left temple—a sure sign that he was impressed. *The young lady sounds like a mixture of Socrates and Sagan. I'm not sure where she fits into this project of Silverman's, but it should make for an interesting evening taking E. C. Ashley to dinner.* It was, he realized later, a classic understatement.

VIII

Leigh spent the two hours after lunch in a skull-cracking session with the computer expert, Jeff Coren. When Coren left, John wearily piled the thick, lose-leafed books on Russian computers into his briefcase and carried his "homework" into the waiting room. Elizabeth emerged from Silverman's office at the same time. A tiny frown etched a vertical line between the graceful brows. For a moment she looked at John absently, as if trying to place the face, then with some difficulty, pushed the dark mood away. "Oh, Dr. Leigh. Are you ready for our swim?"

"I'll have to drop this stuff at the apartment and get my swim trunks."

"May I drive you there?"

"Sure. It's on our way. But for Pete's sake, call me John. I can't tackle a lobster in front of anyone who calls me Dr. Leigh."

"Then Elizabeth and John it shall be," she smiled. They made their way out to the small graveled parking lot where Elizabeth unlocked a graceful little light blue MG. She patted the white leather upholstery lovingly. "Isn't it delicious? I've only had it a week and already it's part of me."

"Is this your first sports car?"

"No. I brought a Triumph over from England when I was there several years ago. But last week I hit a piece of glass, or something, on the Expressway. Anyway, a brand-new tire blew out. Thank goodness my seat belt held. The car was a wreck. I got this one from a young student at the University. His parents gave it to him for graduation from high school, but they made him sell it when his grades went down. What a shame!" Her twinkling grin wasn't in the least sympathetic.

"Here we are." John directed her into a driveway, jumped out of the little car and came around

to her side. "Would you like to come up for a drink?"

"I think not now, thanks. We'll have to hurry as it is to get our swim while it's still sunny."

"O.K. I'll be right down." He ran up the stairs to the large, airy bachelor quarters which had been converted from a chauffeur's apartment over the garage of one of the large estates. He returned quickly, dressed in slacks and a light knit shirt, his swim suit rolled in a towel under his arms.

"To the 'coop', my good woman.

"Very good, sir. The 'coop' it is."

Elizabeth was soon maneuvering the little car with skill and verve on the eastbound Sunrise Highway. John approved of her driving. She knew precisely what was going on all around her and while she was not reckless, she had a decisiveness that moved the little MG rapidly up the stream of traffic. Like most good drivers she concentrated on driving and her conversation was largely monosyllabic when the traffic was heavy. At one point she reached under the dash and switched on a small tape hi-fi. To Leigh's surprise it played a jumping rock-and-roll number.

"Well, you had me fooled. I figured you for the string quartette type."

Elizabeth laughed and gave the coppery head a shake. "As a matter of fact, I did once play the cello. I was very serious and very 'cultured'.

"But as I got further into my work I realized that there were many kinds of 'culture', some of the mind, to be sure, but also many of the spirit." By now they had left the busy highway and in the lighter traffic she warmed to her subject. "Have you ever read Jack Kerouac?"

"Some."

"Do you remember in 'On the Road' when he talks about 'digging' something? He meant a kind of bodily, emotional, whole-animal response—a sensitivity—completely uninhibited. This is what some of the modern painters are after, I think. But the art historians insist on dissecting their work and miss the whole point. It's meant to be 'dug' not dissected. That's why I like this." She gestured at the tape recorder. "To me rock-and-roll and some of its later variations have come closest of modern music to this feeling. I guess," she laughed at her own seriousness, "I must be after the lost youth I spent buried in libraries. Anyway, we're here."

She whipped the little car into a macadam lane headed toward the sea and pulled into a parking place in a crowded, sandy lot. She reached into the back of the car and brought out a giant woven straw beach bag of mossy green decorated with a large white dolphin, and flung it over her shoulder as she and John strolled up the boardwalk to the "coop".

The "coop" was the savants'

name for Dugan's Duck Coop. It was a large, rambling place built on a stretch of beach east of the Hamptons. The menu was strictly Long Island—duckling, new potatoes, seafoods from the wharf at Montauk, and fresh vegetables and fruits from the rich truck farms that cover the center of the island. There was dancing on the veranda but one of the biggest attractions was the rolling surf and soft sand where the diners could swim and sun before they ate. Dugan had provided dressing rooms for his patrons and it was from one of these that Elizabeth now appeared. John smiled appreciatively.

The copper brown hair was now loose, long and straight. It turned up only slightly where the ends brushed the shoulders of a moss-green beach coat decorated with another large white dolphin. She had on white sandals and under the loose coat, a darker-green bikini. John could feel the stir this caused on the beach when Elizabeth flung the coat to the ground.

Miss Ashley was what the designer of the original bikini must have had in mind when he made the suit—not the skin-and-bones models of high fashion, but skin as lush as a ripe peach over smooth mounds of flesh filling the little strips of cloth to the brim. Dry, she was lovely; wet, she was spectacular.

The surf was heavy and exciting. They dove under the crests of the waves head-first, and then turned and rode the swells inshore. In the distance they could see some surfers paddling their boards farther down the beach where the waves had a longer roll. At last, tired from the tossing of the big waves, they climbed out onto the shore.

From the dolphin bag, Elizabeth produced a huge striped towel. "I'll dry your back if you dry mine," she suggested. She flung the towel on the sand and produced two more from the bag. She handed one to John and stretched face down on the striped towel waiting. Leigh patted the bronze back lightly. The tiny white embroidered dolphin that covered the clasp of the bikini top seemed to wink at him mischievously with its sparkling eye. He finished the job as fast as he could in the interests of self-control and handed her back the towel.

For some reason Elizabeth worked slowly, almost dreamily. It was almost too much for Leigh, but suddenly she was finished and stretched out next to him on the beach towel. The sun was beginning to set and as the sea breeze came up they moved closer together. "Now," she said, "I've told you about my wasted youth. How about yours?"

Gently she drew from Leigh a stream of ideas and memories about himself. For this was one of the traits that had made men willing to forgive Elizabeth her superior

intellect—she listened. She listened and was interested in what they said. Leigh found himself talking easily and well. Of his recent past and present, however, he said nothing. Elizabeth was curious. "But what about this outfit you work for now? Silverman has told me something and I've guessed a lot more. Who couldn't, with that silly acronym, SPI," she almost giggled. "It's hardly subtle."

John laughed. "The people who count know what we do anyway and the rest don't care, or seem to notice. The name was up to Silverman. I guess he couldn't resist."

"And you? What are you? Some sort of scientific James Bond stealing technical secrets, destroying enemy agents, and seducing beautiful women?"

Leigh's lips smiled back at her but Elizabeth could see the pain or anger behind his eyes. *Damn,* she swore to herself, *Elizabeth Bigmouth does it again. Why do I have to make a bum joke of everything?*

"You make it sound too much like fun." John rose and pulled her up beside him. "How about dinner? You ready?"

Elizabeth nodded her head, her eyes lowered. "I'm sorry," she said. "I always did have a left-footed mouth."

John laughed and flung his arm around her shoulders. "Come on. Let's forget business for a while. When you eat at the 'coop' you should think of nothing but food."

Hand in hand they ran up the beach to change from their damp suits. From the dolphin bag this time came a soft checked gingham blouse and form-fitting gray pants. Leigh had decided by this time that this philosopher could make a potato sack look like Pucci.

Dugan himself greeted them at the door to the dining room, and escorted them to their table. The main room of the restaurant faced the sea and was all glass on that side. A louvered screened strip just below the glass wall let in the sound of the surf and the smell of the salt air. The ceiling was low with exposed oak beams hung with fishnets decorated with shells and sea ferns. The floor was a terrazzo made from pebbles worn round by the waves. Paintings by artists from the local art colony covered one wall and one of the sculptors had created in one corner a huge assemblage of driftwood and "found objects." It was the fashion to hang coats and caps on this so that it was constantly changing shape and color.

The low throb of music from the discothèque outside the veranda pulsed into the room mingling with the wash of the sea. During cocktails they had a serious discussion comparing the virtues of Long Island duckling versus Montauk lobster and decided to compromise.

John stayed with lobster and Elizabeth ordered half a duckling in orange sauce.

When their dinners arrived they ate hungrily, giving to the delicious food the attention it deserved. Dessert came—Dugan's specialty—a glazed strawberry pie in a feathery butter crust, and with it strong, hot coffee. Now that their sea-sharpened appetite for food was satisfied they turned again to each other, chatting amiably, like old friends. As he talked, Elizabeth searched Leigh's face for a clue to the excitement he aroused in her. She saw an unruly topping of dark-brown hair over a pleasant, boyish face with gray eyes that were kind yet oddly withdrawn, almost shy. It was, she decided, this reserve that challenged her. She wanted those eyes really to smile at her, to erase from them the dark shadows of the things they must have seen. And perhaps, she finally admitted to herself, she wanted to see if those husky arms were as strong as they looked.

"Yes," she suddenly heard John tell the waiter who had appeared abruptly, "that will be all, thank you." They had sipped their coffee as slowly as they could, but they could make it last no longer. The evening had seemed too short. Neither wished it to end just yet.

"How about one last walk up the beach," John suggested.

"I'd love it," she agreed, slipping her arm through his.

Where the edge of the sand was wet, they stopped and removed their shoes. They flung them over their shoulders and strolled slowly along the shore. The sea was calm now as the tide turned. Starlight made a soufflé of the foam that rested and then sank at the changing edge of the water.

They walked in silence. Words seemed a waste when chemistry worked so well on such a night. John looked at the sky and wondered idly if orbiting around some distant star there was another earth with another man and woman for whom time and the universe were compacted into a stretch of beach. Then he looked down at the dark head beside him and decided that this wonderful creature must surely be unique.

Elizabeth felt his gaze and glanced at his serious face. What she saw there made her shiver slightly. John felt the tremor through the soft fabric where his hand rested around her waist. They stopped.

"Cold?"

"A little, I guess," she lied.

"Perhaps we'd better go back."

"Maybe we should."

They turned to go and found themselves face to face. Their kiss, infinitely tender, left them both light-headed. Instead of turning back the way they had come, they turned together toward the dunes where they climbed the steep slope.

John found a spot where there was a tiny clearing in the beach plum and shore grass. He sat down and pulled Elizabeth down beside him. They kissed again. John felt bewitched, as if a huge wave had broken loose from the quiet sea and flowed softly over them.

Suddenly his senses were alert and Leigh knew, as he had known that night in Sunseek, that they were not alone. His first impulse was to laugh. What a time this would be to meet one of Elizabeth's students seeking, as they had, the solitude of the beach with a lover. He raised his head slightly and peered under the low branches of the beach plum. A short, stocky man was coming up the beach, but he was alone and walking fast from the direction of the "coop." Then from behind them John could hear other noises of bodies moving through the brush. Elizabeth felt his body tense and opened her sleepy eyes questioningly.

"Quiet." John covered her mouth lightly and whispered in her ear. His voice sounded casual but Elizabeth felt a watchfulness about his body that seemed strange on a peaceful Long Island beach. She lay still, watching Leigh as he followed the man's progress.

"Funny," she heard him murmur. Then he turned to her. "You know, that fellow's acting strange. I don't like it. I think we'd better go back to civilization." He ran a tender hand regretfully over her soft brown hair and cheek. "I'm sorry." Then he took her hand. "Come on."

They were not sure why. It seemed almost by instinct that they wormed their way so quietly to the shadowy dip behind the dune, never breaking the cover of the low beach plum bushes. Crouching low, they followed the shadowy path to a clearing where two small buildings faced the sea. They could scarcely have been dignified by the term "cottage" for they were weather-beaten shacks built for the most relaxed of week-ending. Bottles of gas for the stoves leaned lazily on casual supports. The windows were shuttered for the week. More important, there were no electric lines entering the compound so no telephones would be available. The place looked utterly deserted.

Behind them John and Elizabeth could hear a muffled shout from their pursurer—if that was what he was. The noise drew nearer and other voices joined in. Apparently the men were working their way toward the clearing.

John pulled Elizabeth past the first beach house into the shadow of the second and past it into another hollow in the dunes beyond. He pushed her flat to the ground just as the barrellike figure of the man he'd seen on the beach broke from the shadow of the dune they had just left. Soon two more men joined him. Elizabeth drew in her breath and shrank closer to John.

One of the men carried a cruel-looking machine gun.

Leigh could not understand the dialect the men growled at each other, but he thought he caught a Russian cognate for "teacher" and "alive." Then there was a command for silence.

It became deadly quiet. There was only the soft murmur of the sea. Suddenly from the first cottage there was an audible rustle. The men quickly surrounded the hut. John could see now that all three were armed. Barrel-chest shouted in heavily-accented English. "You are surrounded. Come out and you will not be harmed." The rustling in the beach house ceased, then there was a loud clatter as if a pot had fallen to the floor. The three thugs watched expectantly.

At last Barrel-chest became impatient. "Now, please, or we burn you out." He waited. "Very well then." He aimed his gun at the gas tanks and fired. The liquid propane flowed out on the sand and soaked the side of the shack. The man took out a book of paper matches, lit them all, and flung them onto the sand. There was a *whoosh* as the gas caught fire and a popping boom as the tanks exploded. The dry wooden building burned like tinder. And over the noise of the fire came a screech of pure animal terror. Elizabeth buried her head in John's shoulder. The three men watched eagerly. Then from behind a loose shutter jumped a huge, skinny alley cat, its eyes wide with fright. Barrel-chest swore and shot the animal dead.

"Quickly," John hissed, "we'll circle back to the car." The piercing wail of the town fire siren cut through the air like a knife. Already cars were stopping along the dune road as the brilliant blaze drew spectators like moths. From the distance John heard a welcome sound—it was the low drone of the Coast Guard helicopter he knew patrolled the beach. "Let's get out of here before we have to answer too many questions. We'll let our friends back there do that." For John had also seen the swinging red light of a cruising police car. The three men were trapped.

Quickly he circled up to the road, slipping his arm around Elizabeth and slowing their pace to that of a pair of lovers idly interested in the excitement. They mingled briefly with the crowd and then slowly strolled on toward the "coop" and the little MG.

When they reached the parking lot, John held Elizabeth back while he cautiously checked the little car for explosives. Satisfied that it was safe, he took the keys from the still stunned girl and gently guided her to the passenger's seat.

He drove slowly with one arm around Elizabeth. "Put your head on my shoulder," he whispered. "We must still look like lovers." Finally on the highway he grasped

the steering wheel and lit out, hell-bent, for Fairport.

The change of pace brought Elizabeth suddenly to life. "What happened, John. What was it? Was I dreaming? Please say it was all a horrible nightmare," she pleaded. "Oh, that poor little cat, poor little beast, it could have been—" she choked and wept incoherently, the words tumbling senselessly between sobs that seemed to shake her whole body. John let the spasm pass, waiting until the tears came soundlessly. Then he began to talk softly.

"Elizabeth, you've done beautifully. Don't lose control now. I don't know what it was all about, but we're all right now. We seem to have got mixed up in a more dangerous game than we thought. But Silverman and I will protect you. You'll be safe with us. You must believe that. I'm taking you home with me.

"You shouldn't be alone after what you've been through tonight. You'll be safe there, Elizabeth. We'll be home soon."

The steady flow of the deep voice reassured and quieted the frightened woman. Her head drooped again to his shoulder and she breathed a shuddering sigh. He put his arm around her and stroked the soft hair as they drove in silence, each deep in thought. She felt safe and protected once more.

It was fortunate, however, that she could not read Leigh's mind, for he had understood the men well enough to know that for some reason it was she they had been after. He suspected that she was still in grave danger and that it would take all the resources at SPI's command to make good his promises of safety.

IX

The telephone jangled Leigh awake early the next morning. He jumped quickly from the couch and got it on the second ring so that it would not waken the exhausted woman asleep in the next room.

"Dr. Leigh?" The tone of Silverman's voice and the formal title sent the last vestige of sleep flying. "It seems we have a vicious tiger by the tail. Professor Ashley's apartment was gutted by fire last night. Most of her notes were destroyed either by the fire or water damage. Worse, the lady herself is missing. Apparently she was not at home when the mishap occurred. When did you last see her?"

"I can see her right now. She's asleep in my bed."

"Thank goodness. Er . . . business or pleasure?"

Leigh relayed to his boss the events of the previous night, ending his story with his decision to keep Elizabeth with him for safety. "But I'd no idea it was this serious. Why are they after her? What's put her in such danger?"

"You both better come to the office and we'll try to piece the whole thing together. Will twenty minutes be time enough? I'll have breakfast sent in."

"Better allow half an hour. Shall I tell her about the other affair?"

"Use your own judgment. It's quite a shocker for this hour of the day, but she'll have to be told sometime. In half an hour then?"

"All right. Good-bye."

The phone clicked off at the other end. John sat staring absentmindedly at the receiver in his hand and then slowly laid it in the cradle. A light, firm voice interrupted his thoughts.

"What other affair? Or am I wrong in assuming that the 'her' in that conversation was Elizabeth Ashley?" Elizabeth stood in the doorway of the bedroom, her red-brown hair tousled from sleep and yesterday's swim. The dolphin beach coat was thrown over a pair of Leigh's light summer pajamas. She seemed wide awake and alert. He had given her warm milk and a generous slug of brandy before bed last night. Apparently it had allowed her a good night's rest. Leigh suspected quite correctly that she looked a damn sight better than he did.

"No, you're right," he admitted. He ran aground. How do you tell a woman that all her possessions have been burned? Or worse, a scholar that all her notes and papers are destroyed? He stalled by putting his battered old kettle on the little stove to boil. Elizabeth came to him.

"I know now that I'm in danger, John. Somehow I must have stumbled onto something that makes me a menace to someone." She looked seriously into his face. So you can tell me. Is it worse than last night at the beach house?"

"Perhaps in some ways," he began. As gently as possible he broke the news of the destruction in her apartment.

"It's unbelievable. I feel as if I am in ancient Greece, not America. Why, here they've never persecuted philosophers. They've just ignored them to death."

She paused and then rummaged about in the cupboard, bringing out mugs and instant coffee and busied herself with the chore of making their coffee. She had the female trait of using some domestic chore as her link to calm in a crisis. John, watching her, had the fleeting memory of his mother calmly baking a large chocolate cake in the kitchen as his father had sat numbly in the study contemplating the collapse of his business hopes. He wondered idly if perhaps this was not, after all, the secret of women's ability to outlive their husbands.

"The frightening thing is," Elizabeth continued, "I'm not even sure what I've discovered that makes them want to destroy me. What shall I do?" The last sentence came

out with a trace of panic and John saw that Elizabeth's hands were not quite steady as they set the steaming mug in front of him.

"First, drink your coffee and get dressed. We have an appointment with Silverman in fifteen minutes and you're going to tell me your whole story. We'll proceed from there. Silverman's having the rest of our breakfast sent to the office."

Ten minutes later they were parking the little MG in the Science Processing lot. They found Silverman pacing the waiting room floor. He hurried them into his office as soon as they arrived.

"Elizabeth," he took her hand in both of his. "I'm very sorry about these disturbing and destructive attacks on you. When you agreed to consult for us, I can assure you that we had no idea that you would be placed in such danger." He glanced at John. "You will be interested to know that the men who attacked you last night were caught by the Coast Guard. They claimed that they were Polish sailors and that they were drunk. The barrelchested one, however, is known to us as, er, something more than an ordinary seaman. They are being questioned now, but it will take time to find out anything useful. So we must start at our end of the chain of events to see what's causing the attacks."

He guided Elizabeth to one of the oak chairs round a small conference table in a corner of the office. He sat at the head of the conference table and Leigh was across from the philosopher. "Let's start, if we may, at the very beginning, Elizabeth, wherever you feel that is."

Elizabeth folded her hands on the table and mentally searched back through the past year or so for the first link of the chain. The men waited attentively.

"I suppose," she began slowly, "it really started with the third Dolphin conference." She looked at Leigh questioningly. "I don't know how much you've read about the proceedings."

"I only skimmed the reports. As I understand it, the conferences were organized by scholars seriously interested in the question of communication with intelligent extraterrestrial life. The first meetings were quite small, weren't they?"

"Yes, there were only a few at the first one, but they were from many disciplines and all well-qualified. As you may guess it attracted the innovators, one of whom was J. C. Lilly."

"The fellow who's studying dolphin language? Is that where they got the name?"

Elizabeth nodded. "There's even a little emblem. We are all quite proud of it. Well, the proceedings fascinated me so much that when I saw one of the participants at a meeting at Princeton I pumped him unmercifully. I guess he figured the

best way to avoid such an experience again was to invite me to attend the next conference.

"This meeting was held as an adjunct to the dedication of the Naval Research Lab's astrometric telescope. People came from all over the world. There were about fifty there from both the sciences and the humanities. I remember that the weather was chilly for May—"

There was the usual conference luncheon—fruit cup, creamed chicken on Chinese fried noodles, canned green beans, and indifferent ice cream. Elizabeth had hoped that the afternoon talks would be more stimulating than the food. The morning sessions had not produced anything new. To her disappointment neither did the afternoon. She had the nagging feeling that there was a lack of daring, that the speculations were somehow trapped in a web of anthropomorphic thought. Just as early men had cast their gods in a human mold, so these scholars had tended to cast extraterrestrial beings in a humanistic frame. Not perhaps in the one head-two feet image, but she felt they were generalizing Freudian psychology and benevolent good will to the whole universe.

That night there was a cocktail party for the Dolphin conferees. Elizabeth had been chatting with one of the chemists and a biologist. Suddenly she asked them, "What do you feel distinguishes us . . . man . . . from apes?"

"You're prettier than any lady ape I know," grinned the chemist.

"The large brain and the opposed thumb" decreed the biologist.

"Ah!" she confronted him, "I said man and apes, not man and animals. Apes have very good manipulatory abilities and a brain that's admittedly smaller but very similar to man's. Yet still we speak of man as something special and an ape as an animal."

A theologian, who'd been standing near and overheard them, suggested that man's soul made the difference. Promptly he and the biologist got into an involved discussion about what a soul really was. The conversation was attracting more and more participants. "Perhaps it is the complex language man has at his disposal," Elizabeth suggested. But several people shook their heads. "No," said a French mathematician, "that is, I think, only a manifestation of the difference."

Elizabeth listened as the argument swirled around her. She felt the need to think quietly and slipped away from the party to her room. There she drew a bath and lay in the warm water mulling over the question she had posed. By the time she was patting herself dry she had reached the conclusion that it was not that man had intelligence, but that the magnitude of

his intelligence was so much greater than that of apes that it became a different sort of thing. This, she decided, was why the discussions of the day had such an anthropomorphic tone. These scholars had decided that anything man would be communicating with in space would have crossed this threshold from animal intelligence to some sort of humanlike intelligence.

She set the alarm and climbed into bed. Sleep wouldn't come, however. Her mind refused to let the problem go. "They've not gone far enough," it kept nagging, "not far enough, not far enough."

The next morning she could not remember whether she had been asleep or awake when her idea had formed, but she desperately needed someone to talk to. The first person she met in the lobby of the hotel was an Italian physicist named Mario Petronelli. They had met before. Mario flirted outrageously. Elizabeth had often wondered if Italian men liked women more than others did or if they simply managed flirtations better. In any case, Petronelli was a charming man, an excellent listener, and old enough to be her father. She gladly accepted his invitation to breakfast.

They took a corner table in the hotel coffee shop. "I was present on the fringes of that free-for-all you started last night," he smiled. "Do you know it lasted until after one o'clock? It is a very interesting question and one I have pondered many times myself."

"And what conclusion have you reached, Mario?"

"You are right of course, my dear. The answer lies in man himself. It is the human that is important."

"But what aspect of the human is the clue? I think that it is not his body. It is his intelligence that we must explore."

"Call it intelligence, spirit, soul, —it is all the same. Somewhere there may be someone with these same vital forces. If so, we can find a way to communicate with each other."

"Are you becoming religious, Mario, that you use the word 'soul'? Going back to the Church after all these years?" Elizabeth was sorry she had teased for Petronelli looked hurt.

"You misunderstand me, my dear. It is man's existence, his humanness that makes him different from animals. Why the way you talk it is only his ability to do fractions. We might as well be computers."

"But maybe that's just it!" Petronelli was surprised at Elizabeth's intense reaction. "Maybe that's just what we are—machines!"

"My beautiful professor," Mario laughed, "no man could look at you and feel like a machine. If he did, he would certainly blow a fuse or two."

Before Elizabeth could answer, a friend of Petronelli's, a physicist from the Midwest, stopped at their table. "Ah, come join us, George. This lovely lady is trying to convince me that she is a machine. Professor Ashley, George Gryson from Argonne National Laboratory in Illinois. Come now, if we were machines, would she not set your circuits crackling?"

"Probably burn them out," Gryson grinned and pulled a chair up to the table.

"But listen," Elizabeth fought to get the conversation back to a less personal level, "where do you think Darwinian evolution is leading us? What is the next step in man's journey from the jungle? We don't develop a new, stronger set of muscles when we want to dig a road any more. We build a bigger road-grader. We have learned to move mountains. How? With giant bulldozers. We extend our eyes far out into space with telescopes, our touch to the bottom of the sea with sonar, our ears around the world with radio. And now we have developed what have been called 'mechanical brains'. Why? To increase our powers of reasoning." Elizabeth sat back and tasted her forgotten coffee. She made a face. The brew was stone cold. Mario summoned the waitress for a fresh pot.

"There's the rub, Professor Ashley. A machine cannot reason by itself. Only man can do that."

"Are you sure?" she replied. "A number of years ago a mathematician named Turing raised this question of whether machines could think or not. Rather than answer the question directly he proposed a game. He suggested that a person be seated in a room with two teletypes. One teletype would be operated by a human being in another room. The other, by a computer. The person can type out any question he wishes, but neither the human nor the mechanical agencies in the other rooms are required to answer him truthfully. At first the game will be easy—the man might ask complicated multiplication and the computer gets it right too quickly. But each time the computer's designers improve it. In the end it takes our player more than a lifetime to tell which is which so it is essentially impossible. Is the computer thinking? The question is no longer relevant. An equally fair question would be, 'Is the man intelligent?'

"To me the direction of evolution is obvious. The intelligence of many humans will create new beings, machines which will not die as their creators will for they only need to replace their wornout parts. Men could end up their servants, or even their pets, just as we have made servants and pets out of chickens, and horses, and dogs."

The biologist of last night had joined the group and heard the last

bit of Elizabeth's lecture. "But man still has the advantage of bisexual reproduction," he contributed. "The randomness of this process tries out innumerable pairs of gene groupings that could produce new and useful beings."

"I'll admit that bisexual reproduction is attractive. (Here there was an unrepressable burst of laughter from the assembled males.) But," she frowned at the men, "a good combination cannot be repeated while you can simply draw plans of a successful machine and reproduce it as many times as you need it. So the randomness of sex may be its very weakness. Besides a machine combines the intelligences of many humans rather than only two, and can always be ripped apart and improved without destroying it.

"The point of the whole thing is," Elizabeth leaned forward intently, "suppose the entity we reach in outer space has evolved past biology. Then we will be communicating not with a biological form as we have projected, but with an intelligence in a completely mechanical form."

There was a general hubbub of cross talk as the group drifted out of the coffee shop into the meeting rooms for the first paper of the day. Gryson hung back with Elizabeth until they were alone. "By the way, Professor, I know a fellow on Long Island out near where you teach, who has shown interest in this stuff lately. Why don't you drop in to see him when you get back?"

". . . And so he gave me your name, Dr. Silverman, and you know the rest." Elizabeth concluded her narrative just as Emily Parkway rolled in a cart laden with steaming coffee, Danish pastries, a large platter of scrambled eggs and glasses of chilled orange juice. The aroma of the coffee suddenly brought to mind their missing breakfasts and for some minutes they ate in silence.

Finally John spoke. "So far it sounds completely innocuous. A fairly typical scientific meeting. Surely no grounds for violence. Besides, what does this have to do with the Russian signals? Does it really matter what form the intelligence takes—animal, vegetable, or machine? It's what it has to say that counts."

"That's part of the problem, John," put in Silverman. "If this space society should be more advanced, their knowledge introduced abruptly into human society could change it drastically. And you know from your father's experience that new technical advances are not always a boon to everyone."

"Suppose," Elizabeth suggested, "that instead of a benevolent society we manage to establish contact with a planet where evolution, or some other force, has created a society of machines, neither ben-

evolent nor malevolent, but completely dispassionate. And suppose that these machines, for one reason or another, wanted to establish a member of their society on Earth, infect us so to speak. Do you realize the tremendous advantage a mechanical society would have over a biological one in this endeavor? For a biological species to establish itself on a planet it must either evolve over many years from the raw materials of its environment, or a sufficient number of its members must survive bodily transplanting from the original environment to the new host planet.

"But all a machine needs is the ability to send on a radio beam at the speed of light the plans of one of its members. Right now our own primitive society has a beam powerful enough to do that. To complete the transfer they need an agency on the new planet intelligent enough to create the machine from the plans, and the proper raw materials. We have the former—man, and we probably have the latter for we have already created many machines here."

"Granting that, what has all this to do with the Russian signals? I still don't see why you are being attacked."

"Do you recall the story of Ulysses and the Sirens in the Odyssey? Remember that at one point in his travels Ulysses must pass a mysterious island on which there lived sea nymphs, maidens who sang such exquisite songs that all sailors who heard them were lured to the island and inevitably to their deaths on the rocks around the shore."

John saw that Elizabeth's eyes were shining. She was coming to the denouement of her argument which had so stimulated her when she had first thought it out. She had found it even more exciting when she heard of the Russian signals and realized their possible implications. To her, a scholar, the thrill of knowledge was reality. Wars, the weather, money, even an attack on her person were nuisances—real and annoying only because they were distractions from her work. John felt a pang of jealousy when he saw that glow in her face. He had been a scholar, too, and knew that no mere man could ever thrill her whole being in that way.

"Suppose in some way the Russian signals are like the Sirens' call—the very hearing of them drawing the human race to the rapid destruction of society as we know it. Let's just say that the machine society's star is dying and that it needs a new home. It sends out a radio signal so tantalizing that we could not resist listening. When it has us 'hooked', it somehow tells us that we really should have a decoder to use the signals better. The plans for such a machine are sent on the beam. Our own computers soon translate them into workable

drawings, for remember, they are 'beings' of the same type.

"So greedy man, perhaps with the idea that this new knowledge will let him or his nation rule the world, builds the machine. But it is really one of 'them'. The planet is infected. The machine cannot be turned off and the man who thought that he would rule the world, becomes the slave of this new creation from outer space. Like the unwary sailors, our society is dashed against the rocks."

Silverman watched Leigh's face as Elizabeth finished her story. It was a chilling one but also highly speculative. Leigh was being asked to risk his life on the strength of the tale. Would this tough, knowledgeable scientist credit the possibility of its truth as he had?

"Yes," John finally nodded, seeming to shake himself out of the brown study he had sunk into. "It does fit in, doesn't it? Somehow they know that Elizabeth has seen the danger so she's become a threat to the men who've heard the signal. It looks as if we'll have to keep an eye on you, young lady." He glanced at Elizabeth and saw the worry around the brown eyes. "And you're such a delightful eyeful, too," he grinned. "What are your plans for the next month or so?"

Elizabeth managed a smile but the worry stayed in her eyes.

"She's going to London," Silverman answered for her.

"To London? You're kidding! What's she going to London for in the middle of all this?"

Elizabeth answered for herself this time. "I'm due there for a conference day after tomorrow. My reservations are for ten o'clock tonight at Kennedy Airport."

"But you can't go batting off to London. It's too dangerous right now with these people after you."

"I wish I didn't have to," she admitted, "but I'm due to give one of the papers at the meeting. Besides I've got appointments with several important English semanticists. I must see them. It's a big chance for me."

"A big chance to get yourself killed!" John was nearly shouting. "They're after you. I should think last night would have convinced you of that. You're much safer here where we can keep you under close protection. Don't you think so, sir?" He turned to Silverman for help with this foolish woman.

The boss of SPI had been watching the sailboats skimming gaily on the peaceful bay. Now he turned from the window. It had occurred to him that this, normally taciturn, man's protests were something more than businesslike. He wondered idly if Leigh had given him the whole, unedited version of last night's events.

"It may be more dangerous if she doesn't go," he answered. "This meeting was planned long before the attacks began. The schedule of

papers was published two months ago. Everyone who knows Professor Ashley knows what an opportunity this is and that she'd be there if she had to swim the Atlantic with casts on both legs. We can't afford to draw attention to her by having her cancel out now. Unfortunately, John, I can't spare you for the conference, but I want you to escort her into the airport and put her safely on the plane. McHaney will meet her plane in London and take charge from there."

The door opened and Emily came in and laid a TWA ticket folder on the desk. "Good. Here are your tickets."

"But the school has me booked on BOAC."

"We took the liberty of changing companies and flights to avoid anyone, er, unwelcome boarding with you. This flight leaves at 10:15.

"I suppose you'll need clothing and luggage. How about the notes for your talk?"

"Fortunately I had them with me. I had intended to review the speech after my swim yesterday."

"That was a stroke of luck," Silverman said. "As for your clothing and luggage, SPI will replace those you lost in the fire. But for a stopgap, Rachel has offered her suitcases for your trip. She has also suggested that Elaine's Casual Shop here in Fairport might supply you with some traveling clothes. They carry a fairly complete stock during the summer months . . ."

Silverman droned on. John listened surprised again at his fastidious eye for detail, but his mind was not on clothing or luggage. He knew that flamboyant personal attacks, such as he had witnessed last night, were rare in their work. It meant that the Russian astronomers had their backs to the wall, or needed to gain time. Either way he didn't like it.

X

John pushed his worries into the back of his mind as he and Elizabeth waited at the little Fairport commuter station. The late afternoon sun gave the air a golden, gauzy quality. The town seemed sleepy and safe. Elizabeth puzzled him by being sparkling and gay. He did not understand women well enough to know that a suitcase full of expensive new clothes she hadn't had to pay for would have this effect on almost any woman, no matter how grim the situation.

They could hear the whistle of the train as it left the next town up the line and soon they could see the huge deisel coming down the track with its eight aging cars. It lumbered to a halt and the two young people climbed aboard. They could have been a young suburban couple on their way for a trip to the city, except for the vaguely

worried look in the man's eyes as he glanced at the lovely woman beside him.

Almost all of the seats were empty and they selected one near a window so dirty that the golden summer sun was changed to a grayish smog. Elizabeth picked up a paper from one of the worn, grubby seats and handed it to John. "Compliments of the line," she laughed. "One thing about this railroad, you never need to buy a paper if you ride it in the afternoon." She looked with distaste at the litter in the nearly-empty car. "At least there's plenty of room. Hardly looks worth their while to make this run."

"Oh, it'll fill up as we go in. This train makes one more trip and then is one of the first into the city in the morning."

"You sound as if you take it often."

"I do. It's really the only public transportation to the air terminal from Fairport. And even it's not very convenient. We'll have to get off at Jamaica Station and take a cab—if we can get one. It's not busy enough to attract many cabs by the time we get there."

"But what'll we do if there aren't any taxis? If I recall Jamaica Station, it's not exactly the place I'd choose to wander around in, particularly tonight." She shivered a little at the thought. "I usually only get off there in the daytime."

"If we're lucky, we'll be able to pick up a fairly honest jitney." Elizabeth looked at him questioningly. "They're freelancers. Go out to Jamaica Station just to pick up people like us who want to go to the airport. They drive private cars and aren't licensed, or metered, so they usually try to charge what the traffic will bear."

"It sounds illegal."

"It is. For one thing their insurance doesn't cover you, and the legitimate cabbies don't like it at all. I understand there's occasionally some trouble over it and a car or two gets sabotaged. And, of course, you can't be sure of the character or intentions, of your driver," Leigh teased a bit. "He just might be out for all the money you've got and use a monkey wrench on your head to get it."

Elizabeth made a face. "It doesn't sound very inviting. Couldn't we go on to the next station?"

"Not and get you to your plane on time. Don't worry. Most of them are nice and honest. I've been picked up there in anything from a Volkswagen 'bug' to a big Cadillac limousine. If they quote you a price in the neighborhood of two dollars, they're O.K. because that's about the legitimate cab fare. If we're lucky, you may get to ride in an antique Packard with an old Irishman named O'Mannion. He keeps his sheepdog with him for company and they've picked me up once or twice." Leigh chuckled

with the memory. "Shawn, the sheepdog, and O'Mannion are quite a pair."

The train was rolling past acre after acre of two- and three-story apartment houses interlaced with loft buildings that made up the outskirts of the city. Through the dirty window it was an unappealing landscape until the darkness fell completely and the lights began to go on in the windows, casting their friendly glow into the summer night. Soon the train pulled into Jamaica Station and the conductor yelled for everyone to get off and transfer to the train across the platform.

John and Elizabeth alighted and took a few seconds to orient themselves on the platform. "There's something about this place that always makes me want to walk in the wrong direction. Yes, it's down this way." John took Elizabeth's arm and guided her to the long flight of stairs that led to the station below.

The station, too, was dirty and had the bedraggled air of a cheap penny arcade. It was lined with tawdry lunch counters and newsstands featuring the more blatant of the girlie magazines.

They walked quickly past these and down more stairs to the street below. The street was as dark as the station was gaudy. Normal lights of the city were blackened out by the overpass for the train tracks. Elizabeth moved a little closer to John and looked about her apprehensively. Nowhere did she see the welcome cartop light of an empty taxi.

John shrugged. "Well," he said, "this is where the freelancers usually stand. I don't see any so I guess we'll have to go to the corner and try our luck flagging down a cab." They were just turning to go when a man they had not noticed before stepped from the shadows.

"Take you to the airport?" he asked. "I've got a nice limousine around the corner."

Now they could get a better look at the man. He had a chauffeur's uniform on his large, impressive frame. His face had the distinguished look one associates with English butlers in the movies.

"How much?" John asked.

"Two-fifty."

"Two dollars."

The driver hesitated and then lifted his hands palms up. "Two and a quarter. After all it's a limousine."

"O.K. Let's go. We've got a plane to catch."

The man led them to an alley where a shining Cadillac limousine was parked. When he opened the door to the passenger section, the light came on to reveal the handsome interior of the car. There was black leather on the seat and the fittings were of burnished pewter. Small cut-glass flower vases were hung on the walls and a built-in bar with cut-glass decanters was set

into the back of the front seat. On the floor was a rug of sheared lamb dyed black. Elizabeth caught her breath at the sight of the splendor and then pulled back. John took her arm and gave her a little shove into the car. The driver shut the door and they heard the soft purr of the powerful engine starting up. The driver's voice came over the speaker. "Which terminal at Kennedy do you want, sir?"

John leaned over and picked up the speaking tube. "TWA, please." He hung up the tube and turned to Elizabeth. "I'll bet this guy's boss is in Europe or some place. He'd probably raise holy Cain if he knew his chauffeur was picking up extra cash this way."

The big car rolled out of the alley and along Sutphin to Archer Avenue. In a few minutes they turned out on to the Van Wyck Expressway. Even at this time the roadway was crowded with cars of all shapes, sizes, and colors. One unaccustomed to New York traffic would have thought it was rush hour. "I wonder why some New Yorkers just don't change places with each other so they all wouldn't have to drive so much," John mused looking out at the traffic. Elizabeth managed a thin smile. She had, he noticed, regarded their driver with suspicion and the car with mistrust. Women, he thought to himself, were very hard to please—always worrying about something.

Overhead now was the steady whine of the jets taking off and landing from the great international airport by the bay. Soon they were at the intersection of the Van Wyck Expressway and the Southern Parkway, the gateway to the little city-within-a-city that was the airport complex. They could see the lights of the terminals and above them the winking lights of the circling planes. Suddenly John grabbed the speaking tube. "I said TWA," he spoke sharply. "Are you taking a back way? Why did you turn onto the Southern Parkway?"

There was no answer from the little grille of the speaker. Through the heavy glass that separated them from the chauffeur, John could see the man's face reflected in the driving mirror. It was set in a smug, nasty smile. The lights of the airport faded behind them. They were being kidnapped.

John tried desperately to roll down the windows. They wouldn't budge. The power to the controls had been cut off from the front seat. The door handles swung uselessly in his hand. Somehow they had been locked from the outside. They were trapped in a luxurious jail on wheels.

The danger dawned on Elizabeth. She watched in wide-eyed terror as John took from his waistband a small gun and aimed it point blank at the neck of the driver in front of them. He motioned the woman to lie on the

floor. At the first stoplight that brought the car to a standstill, he fired. There was an explosion, the acrid smell of gunpowder, and the *plink, plink* of a ricochetting bullet. Then silence. The light changed and the driver drove calmly on in front of his bulletproof glass.

Leigh swore silently at the smiling face in the mirror. "At the next light," he whispered to the girl, "we'll try to attract attention from one of the cars around us." She nodded wordlessly and now John cursed himself as he saw the tears of fear rising in the wide, brown eyes. He was not aware at first of the new sound—a gentle hissing barely audible above the traffic noise. Suddenly he felt his limbs go heavy and saw Elizabeth's eyes relax and then glaze over. He grabbed to catch her before she fell from the seat. The gas had no smell, but it worked fast. He could remember no more.

Passing motorists stared and smiled as they saw the two passengers clinging together in close, motionless embrace in the back of the elegant car with the huge, impassive chauffeur sitting straight and unnoticing in the front seat driving them through the streets of Brooklyn.

It was the noise of his own garbled voice that woke Leigh. He

was having a wild dream in which the chauffeur had become a large, black beetle and he was dousing the bug with DDT. The thing wouldn't die and Leigh was about to raise his foot to stamp on it when he saw that Elizabeth had grabbed his ankle to prevent his hurting the beetle. He was struggling to free his foot and swearing at her to let go because the bug was getting bigger by the minute. Soon it would be too big to crush. "You little fool," he yelled and opened his eyes, puzzled and confused.

He was in a small dark room strapped to the frame of an old-fashioned white iron bedstead. His feet were tied to the bars of the foot of the bed. He couldn't move his arms. Lifting his head, he could see that they were strapped to the side rails of the bedstead. He growled and sank back. He'd just seen something important. What the hell was it? Think, you woolly-headed son of a sea cook. Think!

The black beetle got mixed up with the straps again and he drifted off into unconsciousness.

A new sound, a low moaning, woke him again. It came from his left. He strained his head up again for a look. There on an iron bed similar to his lay Elizabeth, her new linen dress rumpled and twisted. She was strapped and tied to her bed in the same manner as he was. And then he remembered what he'd seen that was so important. Whoever had strapped down his left arm had left the buckle on top. If he tried, he could just reach it with his teeth. The black beetle was floating into view again. Roughly he shook it back into limbo and strained himself to a half-sitting position leaning toward the enticing buckle. He had just tasted the salty leather as it grazed his lips when he heard a noise on the stair outside the room. Quietly he lowered himself again to the bed and played dead. Through the crack in the door he heard the voice of the chauffeur talking in bad Russian to someone with a more cultured accent.

"They're in there just as we promised," the chauffeur said.

The other voice was slightly worried. "The woman's not hurt, is she? They want to start her on her way tonight safe and sound. They'll take the agent Leigh if they have to, but, if he makes any trouble, they are not so worried about his condition on delivery."

"They'll both be all right. Just get them off our hands. The boss doesn't like tangling with the Feds anymore than he has to."

"They'll be out of the country in three hours."

"Good. Just make sure they can't be traced to us."

"No chance. They will be going by diplomatic pouch," the voice chuckled.

"Won't they be a little crowded in with all the mail?" the other laughed.

"Actually they'll be going by truck. We send one out every week, so it won't cause much comment if there are two tonight. They will be heavily drugged so they won't mind their cramped accommodations."

Leigh ground his teeth as he listened to the merriment their situation afforded the black beetle and his elegant friend. He could see through his closed lids an increasing redness as the door to the lighted hall was opened and the two apparently looked in to check on their "guests." The cultured voice continued on his left. He could hear the lechery in it. "Ah, what a prize. One can hardly credit the council's claim that they want her for her brain alone." There was a silence and then Leigh heard soft footsteps receding and there was darkness outside his eyelids as the door was softly shut.

"I've got to get her out of here." Anger had dispelled the stupor of the gas. He heaved himself up again and addressed himself to the buckle. The leather tasted of sweat and the buckle of metal, but he got it free and quickly undid his other arm and legs. As he worked on Elizabeth's bonds he surveyed their situation. It could not be very late yet. There was still the noise of a fair amount of traffic in the street outside the single window. And if they were to leave by plane tonight there must still be time before the flight left. "About ten or so," he guessed. Gently he shook the groggy girl. She fought him half-heartedly and opened her drowsy eyes.

"S'too early," she grumbled. "Don't have clas' 'til ten. Sleep s'more." She shook him off and tried to roll over.

"No, Elizabeth, time to get up." He patted her face and hands and hauled her to her feet. "Here we go for a nice walk. Walk. Walk, walk." He got her feet going.

At last she was coming to. "Where we are? Don't like that man." She shook her head firmly. "Don't like car. Looks like bad gangster movie."

"Honey, you are so right. Now wake up. We've got to get out of here. Can you stand up?"

Elizabeth nodded weaving. Leigh went to take a look out of the window. It was a second-story with a tangled planting of shrubbery underneath. Close by there was an old board fence protecting the little yard from an alleyway. Off to the left Leigh could see the glow of light and hear the hum of traffic. It was a long jump, but, if he went over the edge and let himself down, the drop of ten feet would land him in the bushes and maybe they'd save him a broken leg. Then he could catch the girl. He turned to see Elizabeth sleepily groping for the bed. He covered her mouth with one hand and with the other gave her a hard slap. Her eyes

opened wide with rage and then seemed to comprehend as he whispered his plan in her ear. They walked to the window and Leigh let himself over the sill. He hung a moment by his hands and then let go, rolling with the fall into the shrubs.

"Now!" he called softly up to the girl. "Jump now, and I'll catch you."

Elizabeth climbed onto the sill and then hesitated. "No, no. It's too high. I can't," she whimpered. Then to Leigh's horror the dark window became a square of yellow light. Elizabeth looked over her shoulder and then down at the ground again. He heard her scream as the black beetle appeared at the window and roughly wrestled her from the sill.

Leigh knew he needed help. There was the sound of gunfire as he vaulted over the board fence and ran to his left down the dirty alley toward the light he'd seen from the window. His left shoulder throbbed as he ran. He wondered if he'd strained it when he fell and put his right hand up to still the pain. To his surprise it came away covered with warm blood. Apparently a shot from the beetle's gun had grazed his shoulder as he went over the fence.

He came out of the alley and onto a brightly-lit little business district. On the corner in front of a drugstore he saw what he was looking for—a lighted outdoor phone booth. He ran in, pulled the door shut and dialed the Federal number. The brisk-sounding operator took Silverman's emergency number. After two rings the voice of Silverman's bodyguard answered. "This is Leigh. I must speak to Silverman immediately."

There was the briefest of pauses then Silverman's deep voice answered. "We've been trapped," Leigh told him. "They're going to put Elizabeth in a trunk." He couldn't hear Silverman's reply. It seemed like a hundred cement trucks were rumbling past the phone booth. His head ached with the roaring. "I've been shot. Y'gotta ac' fas'n catch th' plane." Then he thought that one of the cement trucks had run over him and he collapsed to the floor of the phone booth with the receiver still clutched in his blood-stained hand.

XI

Silverman was seldom angry. To begin with he was a very busy man. He disliked wasting his energy in useless rage and he had little respect for men who did. He concluded that they probably didn't have enough work to keep them out of trouble, and refused to listen to their sputtering, angry arguments. In addition the head of SPI was absolutely and completely reasonable. He always could see and appreciate both sides of any question. Even when one of his

men was in the wrong, he would patiently try to find the mitigating circumstances that would turn a disaster into a useful plan of attack to prevent the same mishap from occurring twice. Often this very reasonableness drove the more quick-tempered of his staff to distraction.

But on rare occasions Silverman would carefully explore all sides of a problem and get mad as hell. Then the cold calmness of his fury was a frightening thing to watch. The pale blue eyes became steel chips, the deep Boston accent, soft, menacing, and bitingly sarcastic. And he was as slow to appease as he was to anger.

John Leigh stood in front of Silverman's desk now, the force of his boss's anger directed at him. "The only good thing about last night," Silverman was saying slowly, "was that you didn't hang up the phone; we traced your call before you bled to death. Otherwise it was something of a botch, wasn't it." It was not a question.

"Yes, sir."

"Professor Ashley was essentially a noncombatant in this struggle. Science Processing cannot afford to have its consultants kidnapped and shipped out of the country in trunks. It could make jobs with the company undesirable." He paused. "As you know, we rely heavily on our consultants."

Without waiting for an answer, he reached over and clicked on his intercom. "Mrs. Parkway, see that we are not disturbed unless one of our leads on Professor Ashley turns up something. Dr. Leigh and I will be in conference."

"Whew," Emily said to Krammer, "the boss hasn't slept all night and this morning I'm 'Mrs. Parkway.' Did you see his face when he came back from breakfast? The storm warnings are all flying today."

"Yea. It's a good day to stay out of sight unless you're the bearer of good tidings. And poor Leigh sure isn't that right now." Krammer shrugged.

In the office Silverman pointed to a chair near the desk. "Sit down. We have to pull at least some of our chestnuts out of the fire in this affair." Leigh sat. Silverman swung his chair away so that his back was to Leigh and looked over the bay. He spoke still with the same controlled fury. "Your shoulder. What did Dr. da Silva say?"

"It was just a flesh wound. Da Silva felt a day or so rest and I'll be all right. He thinks it was partly the aftereffect of the gas that knocked me out in the phone booth."

"Well," Silverman conceded sourly, "that's something anyway. It would take a bit of doing to train a new man for your job and we don't have the time. This thing is moving too fast. You'll have to

do with one day's rest. Day after tomorrow you leave for the Russian radio telescope installation."

Leigh breathed a sigh of relief. The affair was a personal one with him now. But it had seemed this morning that he'd been called in to be replaced. He was glad of a second chance.

"With what you have heard from Professor Ashley, I need not tell you about the importance of your success," Silverman continued. "I can tell you, now that she is not here, that her theory is no longer only speculative. Have you ever heard of Richard Sontag?"

"The Sunseek astronomer?"

"Yes. What do you know about him?"

"Just what I'd heard in conversation at the Van der Pool's one night—that he had been a college professor, left the academic world to come to Sunseek, and had a nervous breakdown there."

"Then you know only the story released for public consumption, and it's true as far as it goes.

"Sontag had been teaching astronomy at a university not far from the one I was associated with years ago. I knew him when he was fresh out of graduate school. He was brilliant and highly imaginative, but also high-strung and impulsive. Sometime last year he presented a proposal to Sunseek to use the telescope there to listen for intelligent signals from outer space. His program was well constructed, and his reputation was sufficient to convince the Sunseek people to grant him a block of time for his experiment.

"In the meantime, he got into a fracas at State and I guess was glad that the Sunseek venture would get him off of the campus. He moved into the dormitory at Sunseek and began his program there. He was about a month into the experiment when he began to act rather strangely. When the talk would turn to world problems at lunch, a strange light would come into his eyes and he would speak of how 'the answer' would come soon, or that 'the solution' was only a matter of time—a very short one at that. Finally, he would become excited and tense and try to convince the other astronomers that he was privy to a fantastic and radical breakthrough which would surprise them all. The men shrugged it off until Sontag began to babble one day about a mysterious 'Him' who would save us all. Van der Pool and some of the others began to worry that he'd really slipped a mental cog and got him over to the site doctor. The doctor recommended that Sontag be sent to a sanatorium outside Albuquerque for a rest and complete psychiatric examination.

"By this time our interest in the subject of extraterrestrial communication was aroused by the developments in Russia. And Professor

Ashley had come to me with her theory. I decided to talk to the psychiatrist who examined Sontag, if only to make sure that he maintained security on whatever classified information Sontag might let slip in their interviews.

"Van der Pool, who has a hand in allotting the time on the telescope, decided meanwhile to check Sontag's notes from his run to see if the experiment could be carried out in his absence or if other use should be made of the facility. The records were kept in Sontag's usual neat and orderly fashion until he got to those of the last few days before his breakdown. Here the data were carefully erased and dummy and obviously incorrect numbers were inserted in their place. This was so unlike Sontag's usual way of working that Jan brought the whole thing to me and we tackled the whole problem together."

Silverman paused and shook his head slowly. "I still find the conclusion we reached incredible, but, no matter how we approached it, the problem came up with the same answer. What Ashley had envisioned had already happened at Sunseek. Somehow the song of her extraterrestrial sirens had reached Sontag's ears and lured him to their trap with the promise of a quick and positive solution to the problems of mankind. He was infected.

"If it could happen to Sontag, it could happen to others. We called a meeting of the most top-level astronomers in the free world and told them of the dangers that could lie ahead in their search for communication with other worlds. They are working now on a method of decontaminating such signals so that man can extract from them only the useful and benevolent information.

"But for Sontag it was too late."

"Was?" John questioned the ominious tense of the verb.

"He befriended an attendant at the sanatorium, a superstitious and highly suggestible fellow. Sontag converted him to the signal's work, for the siren call can be convincing even secondhand. This attendant and Sontag planned his escape in the fellow's car. The brakes failed and there was a crash in the mountains. Both men were dead when the state troopers arrived."

John sat silent, stunned at the fate of what were two essentially innocent men. "You must understand that it was for the best," Silverman continued. "These men were more dangerous than a carrier of a plague. They represented a threat to humanity we've never had to cope with before—one totally outside any national interest, without precedent to guide us. Until mankind could develop a countermeasure to handle his knowledge, it could not be let loose and have society survive."

"What about the Russians? Have they been warned?"

"We warned them about Professor Ashley's theory and told them as much as national security would allow." John saw Silverman's whole body sag with what seemed to be the weight of knowledge too heavy to bear. "They wouldn't listen. They thought it was a political ploy to stop their research and rob them of their chance to be the first to hear intelligent signals from outer space."

"So I leave on Friday for their telescope?"

Silverman nodded and then became brisk again as he moved into the plans he had reviewed so carefully.

"Yes, you will be injected into Russia on Channel Blue."

Leigh was impressed. Channel Blue was reserved for only the most urgent emergencies. He knew of only once when it had been used. A very highly-placed defector was safely spirited out of Russia to Washington in the space of eighteen hours.

I hope, Leigh thought to himself, *it works as well for me.*

"Originally," Silverman continued, "your main job was to have been getting the direction of the telescope, but that no longer seems to be important. Other sources of information have proved to be better than we had hoped. Aerial photographs from one of our satellites are unexpectedly clear and we have been able to get from them almost as good a fix on the telescope as you could from observations on the ground." He pulled a very large print of an aerial photograph from a folder on his desk and handed it to Leigh.

John could see what appeared to be the disk of a giant radio telescope. There were a number of buildings around the installation, but they were not too clear. "We have a number of these and they all show the disk pointed in the same direction. Whoever has heard the signal—we assume it's Petrov—must have convinced them to grant him all of the time useful to his experiment." Silverman put the photograph back.

"In addition we have an informant in the installation itself who has told us that a new building is being thrown up near the main computer." He pulled a second, clearer photograph from the folder. "You can see it here," he pointed to a large rectangle next to another building. The rectangle was surrounded with what might be a welter of construction equipment and some large cylindrical objects. "These," he pointed to them, "appear to be cryogenic storage tanks for some sort of gas. The experts think liquid helium, hydrogen, and nitrogen."

"Why are they so large?"

"None of my sources seem to understand. Oh, they need a little

liquid helium to cool their maser amplifier in the telescope, but not that much. It must have something to do with that new installation."

"Which is—?"

"The machine the signal sent them? Yes, I think it is, if all our theories are correct. To begin with, according to our informant, no one on the site knows exactly what the building is to house. My guess is that Petrov told them he needed another computer to handle his data. Probably told them the Americans had one. I understand that's one way their scientists pry funds loose just like our boys use the race with the Russians to get money. He must not have told anyone that he's receiving extra-terrestrial signals, or it'd be all over Pravda and the world press. It seems ominous in itself that they've passed up such a good chance at publicity."

"So if I am not to photograph the telescope," John finally popped the question he'd been waiting to ask, "what is my job in Russia? To find Eliz . . . Professor Ashley?"

"No. You'll be far too busy. Leave Professor Ashley's fate to us. She's not a spy and the government is attempting legal means to recover her. She is no longer your problem." His eyes were steely.

IN TIMES TO COME

In addition to the concluding installment of "The Siren Stars," next month brings "But Mainly by Cunning," by John Dalmas. Nils Järnhand is back—and demonstrates that while all the Neovikings are large, muscular, and skilled as warriors—it isn't by muscle alone they win their victories against the Orcs.

Sneaking up on a telepath—even when you're a telepath yourself—is not a simple process. And defeating a troop of skilled veteran cavalry, well-mounted, is not a task lightly undertaken by villagers and peasants.

Unless, of course, someone with Nils' brains as well as brawn is around to help . . .

Also coming soon—next month I hope, but type being inelastic, I may not be able to squeeze it in—is one that readers have been asking for. Just because you want it, and I want it, and even that the author wants it, doesn't assure that a story will write itself. Ask any author; good stories write themselves when they're ready, not because the author wants them to!

In this case Telzey has written herself into another story. She's a little older, a little more mature (after all, a girl can absorb an enormous amount of living, dipping into the minds around her!) and—a little more dangerous. The story's called "Resident Witch."

Telzey's written herself into a good one! ■ THE EDITOR.

John saw the expression in Silverman's face. "*Not officially anyway,*" he amended to himself, and made a quiet vow to see her safe before he left Russia.

Silverman was still speaking. "You now have a three-fold task. First, you must take care of anyone who is infected by the signal—if our speculations are correct probably only the astronomer, Petrov, but you'll have to check.

"Second, you'll have to destroy the machine. It is simply too dangerous to be allowed to exist yet and since persuasion didn't work . . ." He left the sentence hanging.

"Third, you'll have to alter the existing computer program so that they think the earlier information is erroneous. One of the experts upstate has constructed a monitor tape for their computer with a 'bug' in it. The 'bug' periodically injects messages in the wrong places on the output. When the Russians start to check for what went wrong they'll find these 'bug' messages and think these were the signals that got Petrov so excited. All you have to do is substitute this tape for the Russian equivalent."

"All?" Leigh questioned. "Just destroy a man, a machine, and a reputation, and alone at that."

"You won't be entirely alone. Our informant will be your contact in the installation. She knows the way around and so will be invaluable," Silverman said casually.

"The contact is a woman?"

"Yes. She's a young computer programmer with a taste for money and the high life. She tried to defect last summer at a computer conference in Italy, but the man she approached is a consultant of ours and told her that if she would go back and work for us at the telescope, we would get her out and pay her handsomely within the year. I think the time has come to make good our promise."

"You mean I'm to get this woman out on top of everything else?" Leigh absently rubbed his wounded shoulder. The tension was making it throb painfully again.

"That's the rest of the assignment. Channel Blue will be expecting you and the woman, Nina Popova, on the outward trip."

"Well, I'll say one thing," Leigh shook his head ruefully, "when you plan a mission, the American taxpayer certainly gets his money's worth."

Silverman nodded with a smile.

"There's a man coming out to explain the bugged tape to you this afternoon. In the meantime you'd better get some of that rest Dr. da Silva ordered. And John," Silverman's eyes were no longer steel but their customary soft blue as he rested his hand briefly on Leigh's shoulder, "Good Luck."

TO BE CONCLUDED

COME YOU NIGH: KAY SHUNS

There's nothing like an outrageous pun to drive a serious, logical thinker completely nuts. And after you've read this yarn, try decoding the title!

LAWRENCE A. PERKINS

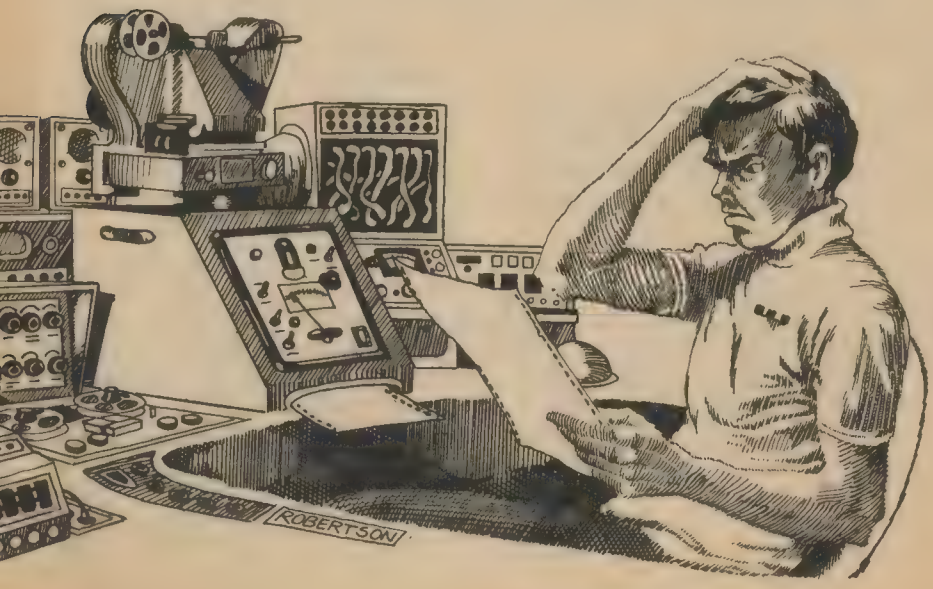
Illustrated by Craig Robertson

Their first warning was a flash of malfunction lights on the command console. Captain Grigory Andreivitch Barenskii reflexively hit the RANDOM EVASIVE MANEUVER button. Just as reflexively, Lieutenant Sean O'Connell hunkered back into his seat so that the automatic restraining belts could engage. Half a second later Tellurian Experimental Minimal Attack Craft X-038 lurched sickeningly.

Groggily, clumsily, Sean activated all his seeker circuits. He'd been using only central rear and forward trimetrogon.

Nothing. None of the radarscopes showed anything. A gut-wrenching deceleration and tight turn almost blacked him out. Nightmarishly, he wondered if he were back in Denver slogging through the practical exercises in his final examinations at the Academy. That had been the worst part of the finals.

Finals. There'd been one problem that had required optics while he'd been spun at a vertiginous three revolutions per second. Sure, this must be another part of the finals. Awkwardly he fingered keys to feed the ship's position and the



exact time into the ephemeris tank and then ordered the display panels to show him any visible object, however faint, not on record in the ephemeris.

To Sean's surprise, the panels showed two objects—something very faint, high and to the left behind X-038, and something much brighter, low and to the left in front of the ship. Denver training took over. The brighter thing in front was probably an asteroid; the other thing was probably a Zhobehr.

Another lurch, and the specks shifted to different screens. Sean fed coordinates to the rocket launcher and then added the visual image of the faint speck. Still benumbed by the unreality of the situation, he stabbed, stabbed, stabbed the key that activated a nuclear warhead and sent a computerized rocket on a relentless search for its target.

"Three nukes?"

"Yeah, three." Another spin knocked the air out of Sean's lungs, and he gasped. "Don't know how far away it is. Don't dare go back to radar. Might lose it. Wonder what they hit us with?"

"I wonder *how* they hit us. Our craft is so small, *unh*"—he grunted at a sudden direction and velocity change—"that they were not supposed to notice us and our new anti-radar reflectant surfaces."

"That's just because we assumed that they use our kind of radar. We pick up each other's sub-etheric messages, but that doesn't mean that our electromagnetic . . . hey, I think we got 'em." A brilliant flash on the display screen that had been showing the faint speck was quickly followed by two more.

As the flashes faded, that screen became utterly blank. Grigory, who had been staring at the display, hesitated and then hit the RANDOM MANEUVER CANCEL button. And the sickening lurches and spins ceased abruptly.

Sean keyed for greater light amplification, but the screen stayed blank. An actual window, of course, would have been thick with stars and spangled with planets and asteroids, but the ephemeris tank computer suppressed every image that astronomy expected from this particular point in space. With no other bodies present, the result on the screen was absolute blackness.

Sean impatiently pressed the stud to retract the restraining belts into his seat. "Can we swing back? The Zhobehr may have thrown something solid at us this time."

"Ah, they never do. They always sneak in, hit, and run. And they use only heat rays, magnetic beams, megawatt tight UHF beams, and other things that we have not identified, but always rays. On Luna, several times, they have crept up to installations and set up huge parabolic reflectors to make of sunlight a deadly beam." Grig-

ory retracted his own restraining belts and keyed for a gentle turn.

Two malfunction lights on the command console lit up. Otherwise nothing happened.

Grigory swore resonantly in Russian and began punching buttons. The automatic restraining belts arced out of their recesses again. One button caused a momentary lurch. Otherwise, the only results were ominous red winks from the malfunction lights. Not even the RANDOM EVASIVE MANEUVER button activated anything other than a whole cluster of malfunction lights.

"Sean, my Erse friend, we are in trouble."

"Erse? And don't call me an erstwhile Erse, either. That's worse than Erse." Sean paused. "Don't make me a terse Erse. What's up?"

"Up? Ah, the status. These late Zhobehr whom you so efficiently atomized, they must have beamed us with the magnetic beam—the one that acts like the primary of a transformer and burns out whatever it reaches by making it an overloaded secondary. Intelligence has said that it must be a very tight beam. I agree, and fortunately for us. The beam must have swept us aft, where our rocket servos are."

"Then what kept them going just now, through all that dodging?"

"I would have to disassemble the entire unit to be sure. But the random evasive mechanism, although complicated, is entirely mechanical. It operates on random impacts between weights whirling on a disk and studs in the disk housing. The studs physically operate fuel valves to the rockets—hypergolic fuel, of course. Someone figured out that such physical impacts were more random and created more intermediate situations than could an electrical arrangement."

"But then, why did the CANCEL button work?"

"Why did Biela's Comet split in two in 1852? Who knows? Possibly the relay was already halfway triggered by our violent maneuvers. More likely, possibly the circuit had a capacitative charge from ruined batteries. And why did the disk still spin? At zero gravity it is probably still spinning. Only during course changes would friction have operated on it."

"So we can't rely on the relay because we got glommed with a lee ray. No, I guess it was an eel ray. It sure made us wiggle."

Grigory, who had been unsnapping fasteners on the command console, suddenly stopped. "Lee ray? What is that? No, I think that it was . . ."

"Relay, eel ray. I like eel ray better. Wiggles more. Now, my friend, how do we wiggle out of this one?"

"Ah, your puns. Our ion drive is still operative. Unfortunately, it is not directional, and can only increase our velocity at our present

heading. We could, I think, change our heading by diligently rotating something heavy—the gnat will rotate in the other direction because of Newton's third law—but the ion drive is very slow. It is also exponential, of course. From Mars orbit, ion drive can reach Tellus almost exactly as soon as rocket drive."

"And get to the outer planets a lot faster. To the Zhobehr planet, even, if only we knew where it is. Do you know, I can't bear the Zhobehr?"

Grigory returned to the fasteners, removed the cover, and closely inspected the maze of wires and switches. "No damage at all here. The life-support systems also seem to be working."

"How long is that good for?"

"Water as long as our backup fuel cells provide electricity. Air for about three weeks if we do nothing energetic. Less food, but the human body can do without food splendidly if it comes to that. We have enough for two weeks."

"I can already taste my delicious boots. But there's no use making bootless complaints."

"We could . . . wait a minute." Grigory tapped keys and then stopped in midgesture. "I was going to say that we could position the ship by rotating something heavy and then at least approach Tellus on ion drive. But the computer is dead." He idly punched another key. "I could, of course, make crude approximations. But the Zhobehr would almost certainly detect the ion drive, which must remain operative constantly."

Sean, who had continued to scan his display panels, suddenly keyed one of them for an expanded image. "Grig, my boy, here come three objects flying in formation—and none of our people fly in formation out here."

Grigory's hands instinctively flew to the control buttons. The only result was a ripple of red malfunction lights on the command console. Again Grigory swore, this time in English. The three objects on the display screen moved to the adjacent panel, which Sean instantly keyed for expanded image. They were by now clearly recognizable as Zhobehr raiders of intermediate size.

Sean's fingers hesitated over his weaponry keys. "I've still got three nukes, and there are three of them. But, by damn, I don't believe they see us." The three ships moved to another panel, indicating that they were now passing the tiny Tellurian attack craft.

Sean slowly withdrew his fingers from the weaponry manual. "Why didn't they see us? They were a lot closer than the one that rayed us. And this time we'd have had to sit and take it." The three dangerous specks moved to another screen, headed toward the larger speck of the asteroid.

"As you recently remarked, we have assumed that they have our kind of radar. Obviously they do not. Hm-m-m. Our radar is off because you switched to light amplification. The navigation computer is out, and all of the navigation circuits are out. Your weaponry computer is on, suppressing star images but not doing anything else. I would have to say that something in that pattern would have to be important."

"They would almost have to have radar—or at least some kind of electromagnetic ranging and detection device—although it may not read out in visual displays like ours. But they must have something else, too—something that makes them such effective sneak attackers. Do you suppose computers broadcast something? They were picking up our accidental sub-etheric signal long before we knew there was such a thing."

"That is true. When we discovered sub-etheric nondirectional instantaneous time-space matrix distortion, we realized that we had unintentionally sent millions of crude signals, and that the Zhobehr had been searching for us long before we found out about them."

"And when we did discover sub-etheric and picked up their signals, we innocently began to try to communicate. While we naïvely exchanged elementary signals with them, they ranged in on us."

"Not exactly ranging, Sean. Sub-etheric is nondirectional. It is only by taking readings on a known source from various locations that the seeker can use the inverse square law to figure out where the source is. A most tedious procedure, but the Zhobehr must have used it to find us."

"How did we get off onto this topic? But hey, look! Those Zhobehrs are matching orbits with the asteroid. At least, what else could it be?" Sean paused, and when he spoke again his voice was taut with emotions. "Hey, you don't suppose that's their base, do you? You know, the base that Headquarters has always insisted that the Zhobehr must have set up somewhere in the Solar System?"

"It could be. In any event, we are probably in orbit around it. Well, possibly not in orbit, but influenced. Without the computer I can only guess. But it is not for nothing that these minimal attack craft are called gnats. Small as we are, we could be captured by a body with a hundredth the mass of Luna. If not in orbit, we will describe a hyperbola around it. At our relative velocities, that may take a week."

"And then?"

"And then, if not in orbit, we could go anywhere. Unless, of course, we turn on the ion drive or get rescued."

"We won't get rescued unless the Zhobehr can be miscued. Look, there comes another triad."

The Tellurians watched in silence as the three specks swelled on the display screens as recognizable Zhobehr raiders and then receded toward the asteroid.

Sean broke the anxious silence. "Tell me, Grig—how close will we be at periasteroidon?"

"Periasteroidon? Ah, periasteroidon! Can you never be serious? How close will we come to the Zhobehr base? I can only guess, but probably not more than half our present distance. Your computer still works. Perhaps we can devise a way to present the question to it as a ballistic problem."

"Until we find out what it is about us that the Zhobehr could detect and can't any more, I'd as soon not turn on anything." Sean meditated. "I've heard that seven days without food makes one weak. Somehow we've got to get word back to headquarters. Damn it, you've got me loving Mother Rossiya, and I've never had any doubts about my side of the world."

"Sean, my friend, in all the heavens there is only one planet that shines with the blue of life. Do you know, I cannot remember a time when blue did not mean to me our blue planet and the life on it? Why else am I here, volunteered for Tellurian International Space Service? And I am glad that I have served with you. You have shown me how blue is the other side."

Sean, his face carefully turned away from his fellow officer, spent several minutes equalizing the visual display screens so that they presented the full celestial sphere. Then he sat hunched in his seat, brooding, ignoring a quintad of Zhobehr arising from the astroidal dot on a lateral screen and heading into Tellurian orbit. Suddenly he yelled "I've got it!"

"What is it that you have got?"

"I know how to get us rescued and tell Command about this asteroid. Can you reduce the signal strength of our sub-etheric communications transmitter so that it will come through very faint and distant?"

"I believe I can. Why?"

"To get us out of this obit orbit. The Zhobehr would know for sure that we're in their front yard if you use full strength. Besides, for this I want a written message. Get me as weak a signal as will be sure to make it to Luna, and get the teleprinter ready."

Grigory made no move to do either thing. "Sean, why? And why a written message?"

Quickly, Sean told him.

Lieutenant Frank Williams was mildly startled when his sub-etheric teletype clacked out a few words and then rang its bell five times. Sub-etheric TWX was for very distant communication, say one or two light-years, where the inverse square law weakened the signal to the point that voice messages be-

came garbled. Since the Zhobehr raids had begun, what Tellurian could be so far from home?

PREPARE TO RECEIVE MESSAGE, the TWX commanded. The lieutenant sighed and obediently typed out AM READY TO RECEIVE and rang the bell five times.

He was, nevertheless, hardly prepared for the answer he got.

TELLURIAN EXPERIMENTAL MINIMAL ATTACK CRAFT X-038 TO HQ MAIN LUNAR BASE INTERNATIONAL TELLURIAN SPACE FORCE NAT CRIB ELLED SIR KLINGOR IN HIGH BURBLE AH ROUND LA GEASTER ROYD HOBB VIE US LEE HOCK YOU PIED BYE SHOW BEAR AS COMB AND BASS ZAP ROCKS EYE MATE LEA SEA ROW ATE FIVE AYE YOU BEE YARN TELL US OAR BITT THEIR TEA FIVE TEAK GREASE COUNT O'CLOCK WHY'S TOOT ELL US RASP PECKED I'VE TELL US ORB BIT AXE HIS THEIR TEEN TEA CREASE DELL LOSS NORTH I'VE TALUS MA R'S X'S WEAL PRO VIED FUR THERE'D ATE AEON VIZ YULE CONN TACKED SEAN O'CONNELL FIRST LIEUTENANT ARTILLERY US ARMY

Lieutenant Williams stared bug-eyed at the message for a full minute before habit and training took over. FIRST LIEUTENANT O'CONNELL X-038 YOUR MESAGE RECEIVED AND RECORDED. SECOND LIEUTENANT FRANCIS WILLIAMS SIG CORPS US ARMY, he clacked out on the teleprinter. Then, scratching his head absently, he ripped the TWX from the teleprinter, stuffed it into a pneumotube capsule which he then popped into the tube for the code section, and returned to the viewer from which he had interestedly been reading "Sullied Sally's Sorrows."

Lieutenant Williams's opposite number on the Zhobehr base had done most of the things that Williams had done. The teleprinter worked on a different principle and the characters that it typed bore no relation whatever to Tellurian letters, but the machine had been designed in the days when Tellus was still ingenuously trying to improve communications with the Zhobehr.

Eventually the Intelligence officer, holding the printout, faced the station commander—insofar as such human terms apply to the Zhobehr.

"Sir, this message seems to be entirely in the alien speech-mode called Inglish except for some personal names, or what seem to be personal names. *Sir Klingor, La Geaster Royd Hobb,* and possibly *Lee Hock,* although both of those last elements are Inglish words. Alien names frequently are also words in the alien language."

"If the message is in an alien language, what is the problem?"

"Sir, the message has no meaning. No meaning at all." Intelligence began translating the message into the Zhobehr language, as nearly as anyone can translate gibberish from one language into another. Commander cut him off.

"You are certain that you have translated aright?"

"Sir, there are any number of variant meanings. Such is the nature of this Inglish. In fact, such is the nature of all the languages of the alien planet. This translation of the message carefully selects the meanings most likely to make sense."

"So you then presented the message to the decoding computers?"

Intelligence promptly indicated offended integrity. "Certainly, sir. The decoding computers analyzed the message and reported that it is meaningless."

The station commander's attitude was the somatic equivalent of a human's staring blankly into space for a minute or two. "And your decoding computer has been thoroughly programmed with this Inglish language?"

"Thoroughly, sir? You have directed us to waste no time on nonessentials. Computer language programming requires a great deal of time. We provided the computer with five thousand Inglish words selected as being the most likely to apply to basic space travel and warfare communication. We did the same for the other three languages that the aliens use in space."

"In space?"

"Sir, these aliens seem to use an incredible number of languages on their planet. They seem to have admitted that such a babel is impossible, yet were able to reduce the number of languages used by their space force only to four."

"Where did this intercepted message originate?"

"Sir, sub-etheric impulses cannot be located spatially. When a sub-etheric impulse is created, the entire time-space matrix is distorted, and receivers record the distortion. Only by ranging through space and observing the inverse square diminution of energy from a constant signal can the source be even roughly located. But judging from the signal strength of this message and the known strength of alien spaceborne sub-etheric transmitters, this one was almost a light-year distant."

Again the station commander was briefly uncommunicative. "A unit at that distance takes this much trouble to transmit a message which we cannot decipher," he finally declared. "Whatever is in that message must be of the utmost importance. As it relates to this problem, my order about nonessentials is withdrawn. Program the computer with everything known about this Inglish language. And find out what this message means."

"Sir, it will take a considerable amount of time to program the computer with everything we know about Inglish. And, except for the brief period when the aliens were actively trying to help us, all we know about the language is based on the special language of intelligent beings in space."

"If you need a considerable amount of time, take it. But take it actively. Cancel all relaxation periods, all rest periods, and all feeding periods until this message has been translated. From a light-year away, and in a form that baffles our computer—yes, I shall order all security measures redoubled. We must have the meaning of that message."

Lieutenant Williams was outraged to the core of his military being when the capsule popped out of the pneumotube, containing the original TWX to which had been stapled a buckslip stating, "This stuff is not in any known code. Sorry. Simmons, T-6, Sig Corps, Message Center."

Williams suppressed the urge to toss the offensive TWK and the buckslip into the trash. Sighing, he realized that every sub-etheric receiver within two or three light-years had picked up the message—and his acknowledgment.

"Nat Crib elled Sir Klingor in high burble, ah, ah! Oh, *boy!*" Suddenly Williams realized that there was one sensible thing that he could do. Reaching for his communicator, he punched the code for Luna Personnel Locator. "Lieutenant Williams, Command Communications Center," he told the face that appeared in the communicator's screen. "Do we have a First Lieutenant Sean O'Connell, Artillery, assigned for duty here?"

"I'll check. Want to hold?"

"I sure do."

As minutes elapsed, Williams idly read the first "sentence" of the garble aloud to himself again. Unexpectedly, something tickled the fringes of his subconscious, but just then the face re-appeared on the screen. "Yeah. Sean O'Connell, 749-99-XR74. He's assigned to Minimal Attack Group 1."

Williams was unpleasantly startled. "Do you know his duty assignment?"

"Let me check." Pause. "Yeah, he's gunnery officer on Minimal Attack Craft X-038—you know, the kind they call gnats. Why, is something wrong?"

"Well, yes, sort of. Thanks." He broke the connection and stared at the TWX. "Nat Crib elled," he muttered. "*Gnat* Crib elled. Gnat *crippled!* Oh, my God!" He looked around frantically for paper and then ripped a page-sized sheet from the teleprinter. Mumbling loudly to himself, he began scribbling. Twenty-three minutes later he had produced the following message:

"Gnat crippled, circling or in hyperbola around large asteroid

obviously occupied by Zhobehr as command base approximately zero point eight five A.U. beyond Tellus orbit, thirty-five degrees counterclockwise to Tellus respective Tellus-Mars axis, thirteen degrees Tellus north of Tellus-Mars axis. Will provide further data on visual contact."

Several days later, Major Grigory Andreivitch Barenskii and Captain Sean O'Connell, having endured a number of ceremonies, citations, and celebrations, finally succeeded in finding a few minutes alone with each other. They stood quietly in the observation bubble lounge, gazing at the blue and white orb of Tellus suspended a scant few degrees above the bleak lunar horizon. The building had been put there to exploit the spectacular view.

"I had not thought, my dear friend, to have seen that sight again." The new major unashamedly put his arm around the shoulder of the new captain in a gesture of deep fraternal affection.

"We may not be seeing it much longer. Now that the Zhobehr have surrendered and revealed all of their secrets, including the location of their planet, there's no more need for a Tellurian International Space Force." Diffidently Sean placed his arm around Grigory's shoulder. "Of course I'm glad the war's over, but this International Force has been a glorious thing. I'll hate to see it break up."

"Ah, peace has come, but peace with an enemy to whom the concept of trade and peaceful exchange of goods and services was a wonderful surprise. Had you thought that a culture evolved on a basis of trickery, deceit, and sneak attack might not be the most dependable partner in an interstellar trade pact?"

"Well, they did reveal their secrets. For example, they not only showed us how they'd been tracking our gnats by picking up signals from our computers, they also showed us how to shield computers so those signals can't be detected. Tellus isn't going to feel threatened any more. And we cost Tellus money." Sean waved his free arm to indicate the whole elegant lounge. "Lots of money."

"Money? My capitalist friend, the expensive buildings are already here. Solar energy is free, and the energy conversion machinery is already here. We make our own air and water, grow our own food. The Zhobehr may indeed turn out to be sinister traders. We will probably have to go interstellar to check up on them. All Tellus may even grow as international as Luna is now."

"You've got that wrong, Grig. Tellus is inner national and we're outer national. Isn't that rational?"

"You know what, Sean? Thank God you are a fast man with a word!" ■

THE LIFE PRESERVERS

There's nothing much more dangerous than the doctor who kills his patient—without guessing it!

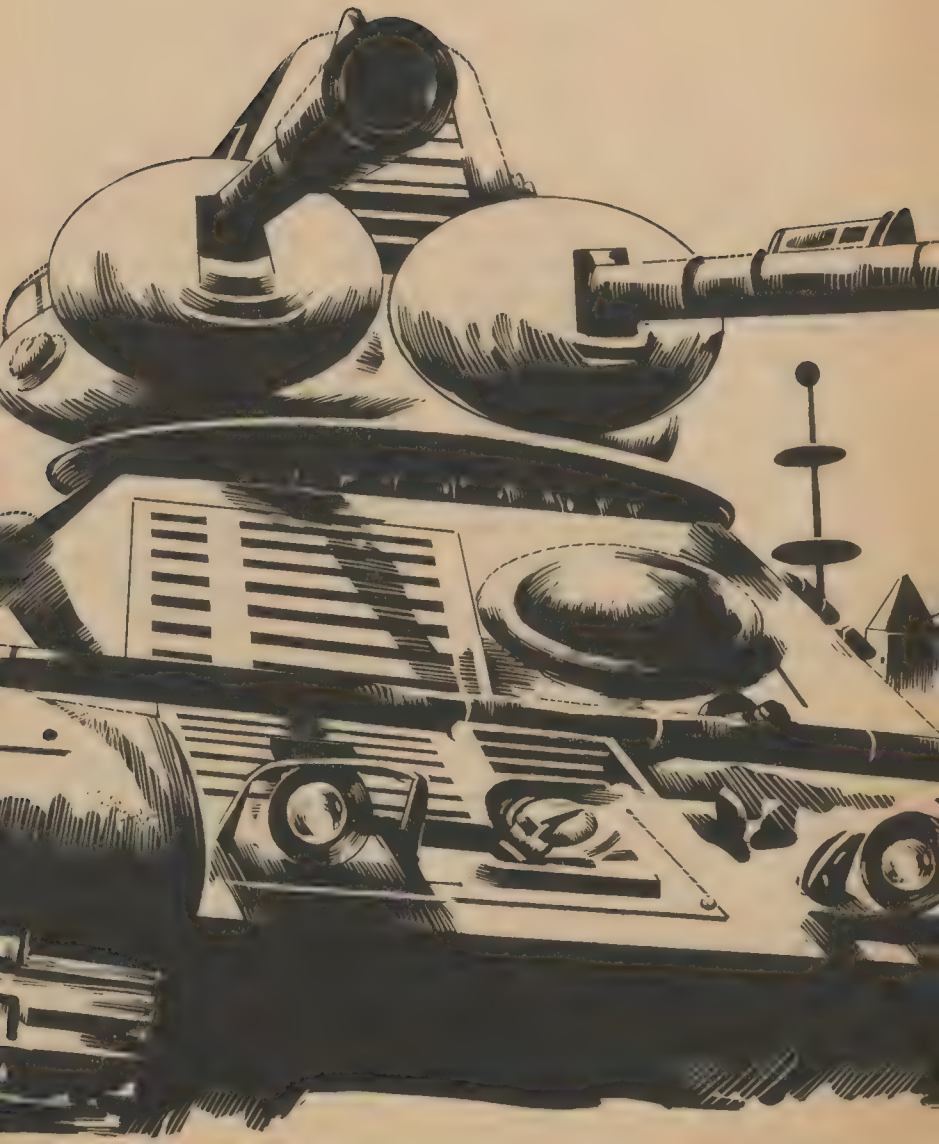
HANK DEMPSEY
Illustrated by Vincent di Fate

I

Rubble and dirt had once been piled high to cover the object, then the resulting mound had been hidden beneath a stone cairn. Either the stones had been badly fitted together or the seasons been most unkind, because the cairn was now only a tumbled ruin, an ugly jumble of rocks no higher than a man's waist. The rubble and dirt had been washed away by the rains of centuries so that now, rising from a foliage-covered hillock, there stood the object that great labor had worked to conceal: a giant frame of pitted, corroded metal three meters high and twice as long. Set into this frame was what appeared to be a slab of slatelike material. It was hard, it had not been scratched, or dented, at all during the long years, and was coated with dust and adhesive debris. Around the tumbled stones and the framed slab stretched a tufted meadow bordered by a growth of stunted trees. Drab hills were visible in the distance, barely seen through a thin mist, merging into a sky of the same indifferent color. The white pebbles of a recent hail shower lay unmelted in the hollows. A bird, brown on the back and light-gray below, pecked desultorily at the grasses on the mound.

The change was abrupt. In an instant, too small a measure of time to be seen, the framed slab changed color. It was now a deep black, a strange color that was more lack of color than anything else. At the same moment its surface must have altered because all of the dust and debris fell from it. A detached cocoon from some large insect dropped next to the bird, startling it, so that it flew away in a sudden flurry of motion.

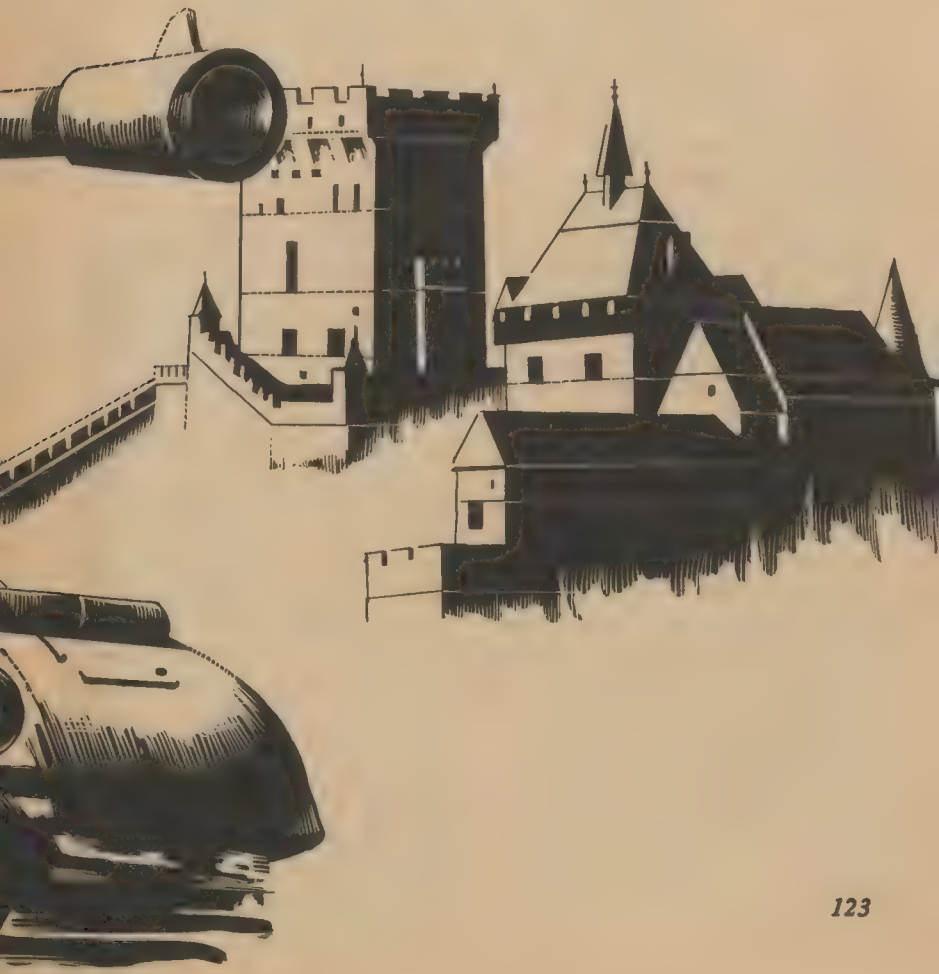
From the blackness a man emerged, stepping out, three-dimensional and sound, as though he were stepping through a door. He emerged, suddenly, and crouched low, looked about suspiciously. He wore a sealed suit to which were attached many complex devices; his head was contained in a transparent helmet and he held a pistol ready in his hand. After a moment



he straightened up, still alert, and spoke into the microphone fixed before his lips. A length of flexible wire ran from the microphone, through a fixture in his helmet, and back to the black surface into which it vanished.

"First report. Nothing moving, no one in sight. Thought I saw something like a bird then, can't be sure. Must be winter or a cold planet, small growths and trees, low clouds, snow . . . no, I think it's hail . . . on the ground. All instruments recording well. I'm going to look at the controls now. They are concealed behind a mound of soil and rocks, I'll have to dig down for them."

After a last searching glance



around, he slipped his weapon back into its holster on his leg and took a rodlike instrument from his pack. He held it at arm's length, switched it on, and touched it to the ground where it covered the righthand side of the frame. The soil stirred, boiling away in a cloud of fine particles, while pebbles and small stones bounced in all directions. With greater effort larger stones were moved, grating and crashing to one side when the metal tip was placed beneath them. More and more of the metal frame was revealed. It widened out below the ground and appeared to be marred by a gaping opening. The man stopped suddenly when he saw this and, after another searching look in all directions, he bent down for a closer examination.

"Reason enough here, looks like deliberate sabotage. Warped edges to the hole, an explosion, powerful. Blew out all the controls and deactivated the screen. I can fix a unit—"

His words ended in a grunt of pain as the short wooden shaft penetrated his back. It was feathered and notched. He dropped to his knees and turned about, painfully yet still quickly, and his pistol spat out a continuous stream of small particles that exploded with surprising power when they contacted anything. He laid down this curtain of fire twenty meters away, an arc of explosions and dust and smoke. There was something pressing up against the fabric of his suit over his chest and when he touched it with his fingertips he could feel a sharp point just emerging from his flesh. He was also aware of the seep of blood against his skin. As soon as the arc of explosions had cut a 180-degree swath he stood, stumbled and half fell against the darkness from which he had emerged. He vanished into it as though into a pool of water and was gone.

A thin cold wind dispersed the dust and everything was silent once again.

II

The destroyed village was a place of revolting death. As always reality went far beyond imagination, and no director would have set his stage so clumsily. Untouched houses stood among the burnt ones. A draft animal lay dead between the poles of a farm wagon, its outstretched nose touching the face of a plague victim whose limbs had been gnawed by wild animals. There were other corpses tumbled clumsily about, and undoubtedly more of them mercifully out of sight inside the buildings. An arm hung down from behind the partially closed blinds of a window, a mute indication of what lay within. The projected scene was three-dimensional, filling one entire wall of the darkened auditorium, real enough

to shock—which was its purpose. The commentator's voice was flat and emotionless, counterpoint to the horrors of the scene.

"Of course this occurred during the early founding days and our forces were spread thin. Notification was received and registered, but because of the deteriorating situation on Lloyd no teams were dispatched. Subsequent analysis proved that a single unit could have been spared without altering the Lloyd effort in any measurable manner, and this action would have altered drastically the results seen here. The death figures, as they stood at the end of the emergency, reached seventy-six point thirty-two of the planetary population—"

The communicator in Jan Dacosta's pocket hummed quietly and he placed it to his ear and actuated it.

"Dr. Dacosta, please report to Briefing Central."

He almost jumped to his feet, despite the past weeks of training. But he did control himself, stood slowly, then left the auditorium with no evidence of haste. A few people looked up to watch him go, then turned back to the training film. Jan had seen enough training films. Perhaps this call from Briefing meant that a mission was finally going out, that he could do something at last rather than look on, impotently, at more films. He was on alert standby, had been for days. This *could* be a mission. Once in the hallway, with no one in sight, he walked much faster. When he turned a corner he saw a familiar figure hobbling ahead of him and he hurried to catch up.

"Dr. Toledano," he called out, and the old man looked around, then stopped to wait for him.

"A mission," he said as Jan came up, speaking the language of their home world rather than the usual Inter. He smiled, his dark, wrinkled features very much like a withered plum. Jan put his hand out, without thinking, and the older doctor seized it with both of his. Toledano was a tiny man, barely coming up to Jan's chest, but there was an air of surety about him that denied his size.

"I am taking this one out," he said. "Perhaps my last one. I have had enough field work. I want you as my assistant. Three other doctors, all senior to you. You won't have any freedom or command. But you will learn. Agreed?"

"I couldn't ask for more, Doctor."

"Agreed then." Dr. Toledano withdrew his hands and the smile. The air of friendliness was gone, wiped away in an instant. "It will be hard work and you will get little credit for it. But you will learn."

"That's all I want, Doctor."

The friendship was also gone, packed away in its right place until the time when it could be taken

out again. They were from the same planet, they had friends in common. This had absolutely nothing to do with their professional relationship. Walking one step to the rear, Jan followed Toledano into Briefing Central where the other doctors were already waiting. They stood when he entered.

"Take your seats, please. I believe that there is one introduction that must be made. This gentleman is Dr. Dacosta, who is a recent arrival. He is beginning his training for a permanent staff position in EPC. Since he is a qualified physician he will accompany us on this mission as my personal assistant, responsible to me and outside of the regular chain of command." He introduced the others, one at a time.

"Dr. Dacosta, I want you to know that these are the important people. The entire mission is designed to get these specialists to the new planet safely so they can do their surveys. I begin with the lady, Dr. Bucuros, our microbiologist."

She nodded briefly, gray-haired and square-faced, her fingers tapping lightly on the tabletop. She wanted to get on with the work.

"Dr. Oglasiti, virologist. You undoubtedly know his work and must have used his text in school."

The olive-skinned man smiled quickly and warmly, a brief flash of even white teeth. The tall blond, almost albino man sitting next to him nodded when he was introduced in turn.

"And Dr. Pidik, epidemiologist. The one we hope will have no work to do at all."

All of them, except the still grim Dr. Bucuros, smiled at this sally, though the good humor faded instantly when Toledano opened the folder of papers on the table before him. He sat at the head of the conference table, next to the transparent wall that divided the room in two.

"This is going to be a long session," Toledano said. "We have a no-contact that the techs say approaches a thousand years." He waited, frowning slightly, until the hum of excitement had passed. "This is something of a record so we are going to have to prepare for almost any contingency. I want you to hear the scout's report. We have little more than that to go on." He pressed one of the controls on the table before him.

A door opened on the far side of the dividing wall and a man walked in slowly and sat in the chair next to the barrier, just a few feet away from them. He wore the green of an MT scout, although his collar was open and white bandages could be seen inside. His right arm was in a sling. He looked very tired.

"I am Dr. Toledano in charge of the mission. These are the doctors on my team. We would like to hear your report."

"Scout, Starke, Senior Grade."

They heard his words clearly, the concealed microphones and loudspeakers took care of that. This movement of electrons was the only connection between the two sides of the room—between the two separate and completely self-contained parts of the EPC Center. Starke was no longer biologically uncontaminated so he was now in quarantine in beta section, the "dirty" side of the Center. The clean, the alpha side, was as biologically sterile as was possible.

"Scout Starke," Dr. Toledano said, looking at a sheaf of papers in his hand, "I want you to tell us what happened, to you personally, on this planet. The instrumentation report reveals that the planet is habitable, oxygen, temperature, pollutants all within the normal range of adaptability. Can you add anything to that? I understand the transmatter was activated using the new Y-rider reversal effect?"

"Yes, sir. There have been less than a dozen transmatters activated in this way. The process is expensive and very delicate. All of the other transmatters were either on league planets or in uninhabitable locations—"

"Pardon me," Jan interrupted, then hurried on, very aware of the sudden attention of the others. "I'm afraid I don't know anything about this Y-rider reversal effect."

"It is in your briefing manual," Dr. Toledano said, his voice emotionless. "In the fine print in the rear. You should have seen it. It is a technique by which contact can be established with a transmatter even if its controls are turned off or useless."

Jan looked at his hands, aware that the others were smiling at him and not wanting to see their faces. He had meant to read all the technical reports, but there had been so little time.

"Please continue, Scout."

"Yes, sir. The transmatter was activated and showed adequate pressure, temperature and gravity on the other side. So I went through. First contact is always made as quickly as possible after activation. A bleak landscape, cold, my impressions are in the report, felt like winter. No one in sight. The transmatter was half buried. Looked as though it had been covered at one time. I dug down to the controls and saw that they had been blasted away."

"You are sure of that?"

"Positive. Typical explosive flanges. There are photographs. I was attaching a new control unit when I was shot with an arrow. I withdrew. I saw no one and have no idea who shot me."

Further questioning elicited no more information from the scout and he was dismissed. Toledano put a block of plastic down before them into which was sealed the unsterile arrow. They examined it with interest.

"Doesn't seem quite right," Oglasiti said. "The wrong length perhaps, too short."

"You are perfectly correct," Toledano said, tapping one of the papers on the table before him. "The historical section agrees that it was not fired from the normal flexed bow we are familiar with from sporting events, but from an ancient variant called a crossbow. There are diagrams here and details of the construction and operation. This form of arrow is called a quarrel. It is well made and finished and carefully balanced. The head is made of cast iron. In their opinion, if this reflects the most advanced artifacts on the planet, the culture is early iron age."

"Retrogrades!"

"Correct. Examination of the photographs reveals that the transmatter is at least a thousand years old, one of the original planet-openers. Considering the level of the culture we can assume that this is the only transmatter on the planet and that they have been out of communication with the rest of the galaxy since soon after the settlement. They are retrogrades. Their culture has slid back to whatever level they were capable of sustaining themselves. We may never find out why the transmatter controls were destroyed, and that becomes academic at this point. Those thousand years of no-contact are our biggest concern."

"Mutation, adaptation and variation," Dr. Bucuros said, speaking for all of them.

"That is our problem. There are people alive on this planet, which means they have adapted successfully. There will have been local diseases and infections which they have survived and have resistance to, which we might find deadly. They may have no resistance at all to diseases we find commonplace. Gentlemen—and Dr. Bucuros—at this point I will make my set speech about the history of the EPC.

"We are so used to the initials that we tend to forget that they stand for Emergency Plague Control. This organization was founded in an emergency and exists to prevent another emergency. The plague years came roughly two hundred years after the widespread use of matter transmission. Some attempts to control the spread of disease had always been made, but they were not adequate. Because of the basic differences in planetary metabolism and philogeny almost no diseases were found that could affect mankind. But our own viruses and bacilli mutated in the very different environments they were exposed to and this proved to be the big danger.

"At first there were disease pockets that quickly grew to plagues. Entire populations were wiped out. The EPC was formed to combat this danger, with all

planetary governments contributing equally to its support. After the control of the plagues, and the terrible losses incurred, the EPC was continued as being essential in preventing another outbreak. There are permanent members, like myself and Dr. Dacosta, and assigned specialists, like yourselves, who serve a tour of duty with us. We are involved in prevention, and will do anything to prevent a recurrence of the plague years. I stress the word *anything* because I mean anything. We are plague preventers first, physicians second. We protect the galaxy—not a single individual or planet. This retrograde planet poses—potentially—the biggest threat I have known during my entire career. We must see to it that it stays just a threat, nothing more than that.

"I will now outline my arrangements for the operation."

III

It was an hour before dawn when the light tank erupted from the transmatter screen. The treads tore at the hard soil and its transmission whined loudly in the silence. At apparently foolhardy speed it roared across the rutted ground in absolute darkness, heading towards the nearest high piece of ground.

The driver sat calmly at the controls, his face pressed to the optical headpiece. Infra-red headlights washed the terrain ahead with invisible radiation—clearly visible to him through the lenses. When he topped the rise he spun the tank in a circle, examining the area all around him, before turning off the engines.

"All clear visibly. You can put up the detector now."

His companion nodded and actuated the controls. A heat shield unfolded on top of the tank—to cancel out the radiation from the tank below—and the scanning head began to rotate. The operator watched the display on the screen before him for a moment before switching on the radio.

"Positioned on highest point two hundred meters from screen. Detector now operating. Numerous small heat sources undoubtedly local animal life. Two larger sources, estimated distance ninety-five meters, now moving away from this position—large animals or human beings. Since they remain close together and seem to be traveling in a direct line estimate they are human. No other sources within range. End transmission."

A second tank had emerged from the screen and was stationed in front of it. It relayed the message to the waiting convoy then moved aside as they emerged.

They made an impressive sight. Fourteen vehicles in all, scout tanks, armored troop carriers, supply trucks, trailers. Their large headlights cut burning arcs across

the landscape and, as each one emerged, the roar of motors and transmissions grew louder. The command car pulled up next to the scout tank and Dr. Toledano stood on a specially elevated step to survey the landscape. There was a growing band of light on one horizon, what they would now call the east.

"Anything more on the detector?" he asked Jan, who sat below operating the radio liaison.

"Negative. The first two blips have moved off the screen."

"Then we'll hold here until it gets light. Keep the detector going and keep everyone alert. When we can drive without lights we'll move out in the direction those blips took."

It was a short wait. Dawn came with surprising suddenness—they must be near the equator—and the first rays of reddish sunlight threw long shadows across the landscape.

"Move out," Toledano ordered. "Single column, guide on me. Scouts out on both flanks and point. I want some prisoners. Use gas, I don't want any casualties."

Jan Dacosta relayed the message evenly, though he felt certain internal misgivings. He was a doctor, a physician, and the role he was playing now felt more than a little strange. The operation seemed more military than medical so far. He shrugged aside his doubts. Toledano knew what he was doing. And the best thing he could do was watch and learn.

The convoy moved out. Within a few minutes the scout tank on point reported habitation ahead and halted until the others caught up. Jan joined Toledano in the open turret when they stopped on the ridge above the valley, next to the scout tank.

"It's like something out of a history book," Jan said.

"Very rare. The cultural anthropologists and technological historians will have a field day here once we open the planet up."

Morning mist still lay in the valley below, drifting up from the river that snaked by in a slow curve. Plowed fields surrounded a village, a small town really, that huddled on the riverbank. Roofs could be seen, jammed closely together, with the thin ribbons of smoke rising up from the morning fires. The houses were pressed close together because the entire settlement was surrounded by a high stone wall, complete with towers, arrow slits, a sealed gate—and all encompassed by a water-filled moat. Not a soul was in sight and if it had not been for the streamers of smoke it could have been a city of the dead.

"Locked up and sealed," Jan said. "They must have heard us coming."

"It would have taken a deaf man not to."

The radio beeped and Jan an-

swered it. "One of the flankers, Doctor. They have a prisoner."

"Fine. Get him here."

The tank rumbled up brief minutes later and the prisoner was handed down, strapped to an evacuation stretcher. The circle of waiting doctors looked on with unconcealed interest as the stretcher was placed on the ground before them.

The man appeared to be in his middle fifties, gray-bearded and lank-haired. He lay with his mouth open, snoring deeply, rendered instantly unconscious by the sleepgas capsules. The few teeth visible were blackened stumps. His clothing consisted of a heavy, sleeveless leather poncho, worn over rough spun woolen breeches and shirt. The thick leather, knee-high boots had wooden soles fastened to them. Neither clothing nor boots were very clean and there was ingrained dirt in the creases of his limp hands.

"Obtain your specimens before we waken him," Toledano ordered, and the technicians carried over the equipment.

The doctors were efficient and quick. Blood samples were taken, at least a half liter, as well as skin scrapings, hair and nail cuttings, sputum samples and, after a great deal of working at the thick clothing, a spinal tap. More specimens for biopsy would be obtained later, but this would be a good beginning. Dr. Bucuros exclaimed happily as she routed out and captured some body lice.

"Excellent," Toledano said as the scientists hurried off to their laboratories. "Now wake him up and get the language technician to work. We can't do a thing until we can communicate with these people."

Burly soldiers stood by as the prisoner was awakened. Seconds after the injection his eyes fluttered and opened; he looked about in stark terror.

"Easy, easy," the language specialist said, holding out his microphone and adjusting the phone in his ear. Trailing cables led from these, and from the control box on his waist, to the computer trailer. He smiled and squatted down next to the prisoner, who was now sitting up and searching wildly in all directions for some avenue of escape.

"Talk, speak, *parla, taller, mluviti, beszelni*—"

"*Jaungoiko!*" the man shouted, starting to rise. One of the soldiers pressed him back to the stretcher. "*Diabru,*" he moaned, covering his eyes with his hands and rocking back and forth.

"Very good," the specialist said. "I have a tentative identification already. All languages fit into different linguistic families, and every word of every language and dialect is in the computer's memory banks. It needs just a few words to identify cognates and group, then it

narrows down even more by supplying key words. Here comes one now." He mouthed the sounds to himself, then spoke aloud.

"Nor?"

"Zer?" The prisoner answered, uncovering his eyes.

"Nor . . . zu . . . itz egin."

The process continued rapidly after that. The more words the prisoner spoke the more referents the computer had. Once the language group was known it had this stock of roots to draw on and then proceeded to determine the variations from the norm. Within half an hour the specialist stood up and brushed off his knees.

"Communication established, sir. Have you used this unit before?"

"The Mark IV," Toledano said.

"This is the sixth. There have been improvements but not any operating changes. Just press the activate button on the mike when you want a translation. The computer will speak to the prisoner in his own language. Anything he says at all will be translated for you."

Toledano put on the earphone while the soldiers hung the microphone about the prisoner's neck and positioned the loudspeaker before him.

"What is your name?" Toledano asked. A fraction of a second after he spoke, his translated question sounded from the speaker in front of the prisoner, who gaped at it in a blend of confusion and horror. Toledano repeated the question.

"Txakur," the man finally stammered.

"And the name of the town over there?"

The questioning progressed in fits and starts. Some questions the man could or would not answer, either through lack of knowledge or imperfect translation. The former was probably true since the computer perfected its knowledge of the language with every phrase the man spoke. Toledano seemed satisfied with the results in any case.

"The military move out in fifteen minutes," he told Jan. "But I want one squad to stay behind to protect the ancillary units. Would you tell the doctors I want to see them now?"

They straggled up one by one, not happy about being taken away from their tests, but knowing better than to make any protests. Toledano waited until they were all assembled before he began.

"We have obtained some knowledge from the informant. The town over there is named Uri, as is the land about here. I imagine it is a city-state, a primitive political unit. There is another city or country called Gudaegin which seems to be in control of Uri right now. I am guessing that they have been invaded and occupied. We will find out soon enough. The Gudaegin are very warlike—the informant

seems very afraid of them—and have weapons of many kinds. They know that we are here. A warning was sent out to come to the city, and our informant was on the way there when he was captured. I am going to enter the city now and talk to the leaders. I will call you to join us when they are pacified. Meanwhile continue with your work since I will want at least preliminary reports by this evening."

The small convoy moved off behind the command car. A rutted farm track snaked through the fields and they followed that to the brink of the moat. Two rows of piles reached from the shore to the heavy sealed gate in the town wall.

"Annoying," Toledano said, looking through the tank's periscope. "They have taken up the flooring of the causeway. We are going to have to find another way in."

Something hit the water before them, sending up a spout of water. An instant later there was a shattering clang on the tank's deck armor. Through a gunnery slit Jan had a quick glimpse of a black object dropping heavily to the ground.

"It looks like a large stone, sir."

"It does indeed. A powerful launcher of some kind. Zeroed in well. We shall have to take precautions. We will pull back fifty meters and spread out in line. Divide their fire. Then see what kind of a bottom this channel has."

It was mud, soft mud. The fire died as they pulled back, then concentrated on the single troop carrier that rumbled back to the moat, over the edge and down into it. The tank was completely watertight, although it never submerged all the way. Only a third of the way across it stuck, treads churning uselessly, sinking deeper. Toledano had foresightedly had a heavy cable fixed to a cleat in the vehicle's rear, so it was dragged unceremoniously backwards to solid ground. Small figures were visible on the wall above, jumping and waving their hands.

"Enough experimentation," Toledano said. "All vehicles forward to the water's edge. Hook this circuit through to the computer."

"Couldn't we use sleep gas?" Jan asked. "Men in suits could swim over there and secure the place, open the gate."

"We could. But we would have casualties. We cannot saturate that place with enough gas to knock them all out without overdosing and killing a good number of them. They will have to surrender." He spoke into the microphone and his translated words boomed from the loudspeaker on the hull.

"I talk to the Gudaegin in the city of Uri. We do not wish to harm anyone. We wish to talk to you. We wish to be friends."

More rocks crashed down on

the row of armored vehicles and a thick, two-meter long spear buried itself in the ground next to the tank.

"Their answer is clear enough. In their position I would probably do the same thing myself. Now let us see if we can change their minds." He switched on the microphone. "For your own safety I ask you not to resist our entering the city. We will destroy you if we must. I ask you to leave the turret above the gate. The high turret above the gateway. Leave it now. The turret will now be destroyed to show you the power of our weapons."

Toledano waited a few moments then issued orders to the heavy tank. "One round, high explosive. I want it taken off with the first shot. Fire."

It was massive overkill. The turret and a great bite of wall vanished in the explosion. Pieces of masonry—and bodies—wheeled high and splashed into the moat. Jan's fists were clenched, his nails digging into his palms.

"Good God, sir. Those were people. Men. You've killed them—" He choked into silence as Dr. Toledano turned and looked at him in cold anger. The translator was switched on again.

"You will now open the gate and permit us to enter. You will wave a white flag as a symbol of agreement. If you do not, the gate will be destroyed as was the turret."

The answer was a concentration of fire on the command car. Rocks slammed into it, numbing their ears and bouncing the armored car on its springs. The large metal-tipped spears clanged off its hull and a sudden thicket of their slim trunks sprang up around the car.

"Use your light cannon, Gunner. I don't want the whole thing down in rubble. Just blow open the gate."

The gun fired, round after slow round. Chewing away the iron-bound planks, dropping them into wreckage and destroying the wreckage."

"There is something happening, sir—"

"Cease fire."

"There, look, on the wall! They are milling about, seem to be fighting with each other."

It was true. First one body, then another, cartwheeled down from the wall to splash into the moat. A few moments later a length of gray cloth—it might generously be considered off-white—unrolled down the wall from the parapet above.

"Battle over," Toledano said, with no satisfaction. "They will rebuild the causeway so we can drive in, protected. I want no more deaths."

IV

His name was Jostun and the computer translated his title as ei-

ther village elder, or council member. He was middle-aged and fat, but the sword he held was bloody. He stood in the middle of the rubble-filled square and waved its point at the building on the other side.

"Destroy it," he shouted, "with your explosions. Bring it down. The Gudaegin will die and the fiend of all of them, Azpi-oyal will die. You are our saviors. Do it!"

"No." Dr. Toledano snapped the answer, a flat hard statement, understandable even before the computer could translate it. He stood alone, facing Jostun, so small he only came up to the other man's chest. But his command was undeniable. "You will join the others on the far side of the square. You will do it now."

"But we fought them for you. Helped you to win the city. We attacked the invaders by surprise and killed many of them. The survivors cower there. Kill—"

"The killing is over. This is now a time of peace. Go."

Jostun raised his hands to the sky, seeking a justice there that was being denied him here. Then he saw the waiting tanks again and he slumped, the sword dropping from his fingers and ringing on the flags. He went to the others. Toledano turned up the power on the amplifier and faced the sealed building.

"You have nothing to fear from me. Or from the people of this city. You know that I can destroy you in there. Now I ask you to come out and surrender and you have my promise you will not be harmed. Come out now."

As if to punctuate his words the large tank grated in a half circle on locked tread to point the gaping muzzle of its gun at the building. There was silence then, even the people of Uri were hushed and expectant, and the front door of

the building squealed and opened. A man stepped out, tall, haughty and alone. He wore a shining breastplate and helm, a sword held loosely at his side.

"Azpi-oyal!" a woman screamed, and the crowd stirred.

Someone pushed through, leveling a taut crossbow. But the soldiers were ready. Gas grenades burst about the bowman and hid him from view. The bolt from the crossbow hurtled out, badly aimed, clattering from the stones of the square and slithering across almost to Azpi-oyal's feet. He ignored it and walked forward. The crowd moved back. He came up to Toledano, a muscular, dark-skinned man with a great black beard. Under the edge of his helm his eyes were cold.

"Give me your sword," Toledano said.

"Why? What will you do with me and my men? We may still die with honor like Gudaegin."

"You have no need to. No one will be harmed. Any who wish to leave may. We have made peace here and we will keep the peace."

"This was my city. When you attacked these animals rebelled and took it from me. Will you return it to me?"

Toledano smiled coldly, admiring the man's hard nerve.

"I will not. It was not yours in the first place. It has now been returned to the people who live here."

"Where do you come from, little man, and what are you doing here? Do you dispute the right of the Gudaegin to the three continents? If you do, you will never rest until you have killed us all. This city is one thing, our land is another."

"I want nothing that you have. Your lands or your fortunes. Nothing. We are here to make the sick well. We are here to show you how to contact other places, other worlds. We are here to change things, but only to make them better. Nothing that you value will be changed in any way."

Azpi-oyal weighed his sword in his hand and thought. He was not a stupid man. "We value the strength of our arms. We mean to rule on the three continents. Will you take away our conquests?"

"Your past ones, no. But you will have no future ones. We cure disease and your kind of killing can be a disease. You will have to give it up. You will soon find that you do not miss it. As a first step on that road you will give me your sword." Toledano put out his tiny, almost child-size hand.

Azpi-oyal stepped back in anger, clutching the pommel. The turret on a tank squealed as it turned to follow him. He looked with hatred at the lowered muzzles of the guns —then burst out laughing. Tossing the sword into the air he caught it by the point and extended it to Toledano.

"I don't know whether to believe you or not, small conqueror. But I think I would like to live a little longer to see what you are going to do to the three continents. A man may always die."

The worst was over. Politically at least. They would now have a period of relative peace during which the tests and examinations could be made. A thousand years of isolation was a long time.

"We must get started," Toledano said, with sudden irritation, as he waved the radio operator to him. "Enough time has been wasted. Have the other units move up. We'll set up a base in this square here."

V

"The line is longer if anything," Jan said, looking out of the window. "Must be a hundred or more. It looks like the word is finally out that we aren't doing terrible things to the citizens here, but are actually curing some of their ills."

They had occupied a large warehouse near the main gate and a medical-aid station had been set up. There had been few volunteers for their glittering and exotic instruments at first, but they had enough involuntary patients among the wounded survivors of the fighting. Most of these had already been given up for dead.

The crude local knowledge of medicine did not appear to go beyond bone setting, suturing of simple wounds, and amputation. The notion of antisepsis had stayed with them through the lost centuries, and they used alcohol as an antiseptic and boiled the bandages and instruments. But they had no way of treating infections—other than by amputation—so that death was the usual result of any deep, puncturing wound.

The doctors had changed all that. None of their patients died. They healed abdominal wounds, repaired shattered limbs and heads, cured gangrene and other major infections, and even sewed back on a severed arm. This last cure seemed more miraculous than medical and soon the townspeople were flocking for treatment with almost religious enthusiasm.

"The waste, the absolute waste," Dr. Pidik said, giving the patient before him, a frightened girl, an injection of fungicide. "War first, that's where all the talent and energy go, with medical care lagging ages behind. They have engineers, mechanics, builders. Did you see those steam ballistae? A pressure tank and miles of pipe and those piston-actuated things that dropped rocks right down the exhaust pipes of the tanks. You might think they could spare a minuscule amount of energy for some work on the healing arts."

The tall epidemiologist bent his blond head low, carefully cutting away dead tissue and swabbing

out the wounds on the girl's monstrously swollen foot. It was twice its normal size, dark, knobby, decayed. There was no pain, the local anesthetic took care of that, yet she was still terrified at what was happening.

"I've never seen anything like that at all," Jan said. "I don't believe there is even a reference in our textbooks."

"This is one of the diseases of neglect, you'll find it mentioned in the older texts. You'll see many things like this in the backwaters of the galaxy. It's maduromycosis. There is first a penetrating wound, common enough, that plants fungus spores deep inside the flesh. If untreated this is the result, after a course of years."

"I've seen this though," Jan said, taking the hand of the blank-eyed man who had been led before him. He rotated the man's hand in a circle, then let go of it. The rotation of the hand continued, automatically, as though a machine had been set into motion. "Echopraxis, meaningless repetition of motions once they are started."

Pidik looked up and snorted. "Yes, I imagine you did. But you found it in the mental wards, a condition of paranoia. I'm willing to bet this is from physical causes, untreated cranial fracture or some such."

"No bets," Jan said, touching lightly the heavily depressed area in the man's skull. It was surrounded by scar tissue and obviously an old wound.

They had a little of everything. Infections, sores, diseases, chronic illnesses, carcinomas. Everything. It was nearly dusk when Pidik called a halt.

"Almost twelve standard hours at this. Enough. They can come back tomorrow. This planet has too long a period of rotation and it takes some getting used to."

Jan repeated the order through the computer and, after not too many complaints, the patients allowed themselves to be pushed out by the guards. All but the sickest stayed in their positions in line, huddling against the wall, to be treated the following day. Jan joined Pidik at the sink where he was washing up.

"I can't thank you too much, Dr. Pidik. Since you have been helping me I think we have seen ten times as many patients. There are so many things here I know nothing about. There really should be a medical school for EPC physicians."

"There is. Right here in the field. You have had good training. There is nothing here you can't treat after some experience. And Dr. Toledano will see that you get it."

"Isn't this taking you from your work?'

"This is my work. An epidemiologist is no good without an epidemic. I've looked at all the samples and

seen the various kinds of wildlife these people carry in their bloodstreams. Nothing exotic so far, nothing alien. Just a good selection of the bacilli and viruses and such that have dwelt in mankind since the beginning of time. Here in the field I may see something that we have missed in the labs."

Jan shook the water from his hands and took a towel. "We've been here almost a month," he said. "If there were any exotic infections wouldn't we have turned them up by now?"

"Not necessarily. We've only been looking at one corner of an entire world. Once our in-depth study is made here we can do a more general survey of the rest of the planet. When it has been cleared for contact the politicians and the traders will come through."

"Do you believe Azpi-oyal's story that an entire army of Gudaegin is on the way?"

"Absolutely. His people seem to have conquered almost all of the other groups on this planet. They won't stand for us taking away one of their cities. But Dr. Toledano will be able to handle them—"

"Some kind of a riot developing, Doctor," a sergeant said, poking his head into the room. "And it seems to be about some kind of sickness. Could we have your help?"

"I'll come," Jan said, swinging the communicator to his shoulder.

"So will I," Pidik said. "I don't like the sound of this."

A squad of soldiers waited for them outside, weapons at the port. The sergeant led and, before they had gone more than a few paces, they could hear the distant roar of voices. As they came closer individual screams and cries rose above the continual shouting, and then the thud of exploding gas grenades. They double-timed the rest of the way.

Only the guns of the soldiers and the waiting tank kept the hysterical mob from attacking. A huddle of unconscious bodies proved that even this had not been enough. As they pushed through to the line of defenders in front of the building, Dr. Pidik waved the sergeant to him.

"The computer can't make any sense out of this noise. Grab someone who looks like a spokesman and get him over here."

There was a sudden bustle of action and the sergeant reappeared, half dragging a burly citizen of Uri who was still a little dazed by the sergeant's efficient means of argument. He was a tall man with a broad chest, sporting a beard and a patch over one eye. The other, red and malevolent, peered from beneath a jutting brow ridge.

"What is wrong? Why are you here?" Pidik asked the man through the computer's translation unit.

"The plague! They have the plague in there. Burn down the house and kill all in it. That's what you must do. Death cures!"

"It's the final cure," Pidik said calmly. "But let us see if there aren't other not quite so drastic measures that we can use first. Come on," he said to Jan, and started up the stairs towards the house.

A moan rose up when the crowd saw what they were doing, followed by an even more intense howl of anger. Despite the guards the mob pressed forward.

"Use gas if you must," Pidik ordered. "But stop them right here."

Clouds of vapor sprang up as he hammered on the door and called through the translator for them to open it. It remained sealed and silent.

"Open this," Pidik ordered the nearest soldier.

The man eyed the tall door and noticed the boltheads for the hinges on one side. He pressed small explosive charges over these spots, close to the frame, pushed in timers and stepped back.

"Ten seconds, sir. They're shaped charges, punch right through, but there can be a certain amount of reverse blast."

They hugged the wall as the sharp crack of the double explosion sounded. The crowd wailed. The two doctors climbed over the ruined door and followed the sound of running feet through a dark hallway. At the end, with the last rays of sunlight filtering through a high, barred window, they found a man lying in bed. A huddle of women and children were pressed silently into the corner.

"Corporal," Pidik said to the soldier who had followed them in. "Get these people out of here. See that no one else enters the building. Call Dr. Toledano for more aid if you need it."

"We'll hold them fine, sir."

"Very good. Give me your light then before you go."

The intense beam shot out and the man on the bed moaned, turning his head away and shielding his eyes with his arm. The inside of his forearm was swollen and red, covered with tiny pustules. Dr. Pidik took the man's hand, frowning as he felt the fever-heat of the skin, and gently pulled his arm away from his face. The man's features were also red and swollen, his eyes almost closed, and at first they did not recognize him.

"It's Jostun," Jan said. "The council leader."

"*Izuri—*" Jostun muttered, thrashing back and forth on the pillow.

"Plague," Pidik said. "That word is clear enough. Get an ambulance here at once and pass word that I want to use the Isolation Ward. And tell Dr. Toledano what is happening so he can alert the troops."

Jostun called out to them, and Pidik held out the translator microphone.

"Leave me . . . burn the building . . . I am dead. It is the plague."

"We are going to take care of you—"

"Death alone cures the plague!" Jostun shouted, half rising as he did so, then falling back heavily, moaning with the effort.

"They all seem pretty convinced of that," Jan said.

"Well I'm not. A disease is a disease—and has a cure. Now let's get him moved."

The city was in a panic. The ambulance had to drive slowly through the dark streets to avoid running over the limp bodies that were strewn on all sides. Sleep gas was being used in greater and greater quantities by the outnumbered soldiers. The encampment in the square was a besieged laager whose defenders opened a gate in the perimeter to admit the ambulance.

"What is the disease?" Toledano asked, appearing as the stretcher was carried into the hospital.

"I am sure that I don't know yet, Doctor. I will inform you when I do."

"I suggest it be quick. We have seven other cases already."

Pidik turned away without another word and Toledano beckoned to Jan. "Come with me." He started at a fast walk towards his headquarters prefab with Jan hurrying after him. They reached it just as a troop carrier slid to a stop and an officer jumped down.

"Bad news, sir. One of the wall positions was attacked, both men dead. The alarm went off and we fought our way back there, but—" He hesitated. "We think they got someone over the wall. This is the man who was in charge."

A limp figure was carried out and dropped, not too gently, at their feet. Toledano looked at the slack features and grunted. "Azpi-oyal, I might have known. Bring him into my office. Jan, wake him up."

Inside, in the brilliantly lit room, the reddish flush on Azpi-oyal's skin was clearly seen, and when Jan gave him the injection the skin was hot to his touch.

"I'm afraid that he has it, too, sir," Jan said.

Azpi-oyal blinked back to consciousness, straightened up and smiled. There was no trace of warmth in the smile.

"My messenger has gone," he said into the translator. "You will not be able to stop him."

"I would not want to. I see no reason why you should not contact your own people. Your army must not be more than a day's march away."

Azpi-oyal started slightly at this mention. "Since you know about the Gudaegin, fifty thousand strong, you will know that you are lost. I have sent them the message to come here, and to destroy this city

and all who dwell within it. Now tell me that you would have permitted that message to be sent?"

"Of course I would," Toledano said calmly. "This will not be done. The city will stand and all will live."

"The plague sufferers—like myself—will be killed. The plague bearers, yourselves, will be destroyed."

"Not at all." Toledano sat down and put the back of his hand to his mouth while he yawned. "We did not bring the plague. But we shall destroy the plague and cure all who suffer from it. You will now be taken to a place where you can rest." He called the guards and switched off the translator. He still spoke calmly, but there was an urgency now to the meaning of his words.

"Take this man to the hospital and see that he is well treated but under constant guard. Use as many men as necessary. He is not to be left unwatched at any time nor is he to escape. This is vital. Do you understand?"

"Yes, sir."

"Might I ask what is happening?" Jan said when they were alone.

"Scouts reported this Gudaegin army a few hours ago. They must not like our taking away one of their captured cities. I hoped to use Azpi-oyal to make peace with them. I still shall, if we can find a cure for this plague."

'What was this nonsense about our bringing the plague?"

"No nonsense. It looks like the truth, though I don't see how it can be. Allowing for minor variations due to incubation period, the only people who are getting sick are the ones who had first contact with us. There is no way of escaping that fact."

Jan was shocked. "It just can't be that way, sir! The only microscopic life we carry in our systems is intestinal flora. Which is harmless. Our equipment is sterile. It is impossible that we could be involved."

"Yet we are. We must now find out how—"

Dr. Pidik burst through the door and dropped a slide on the desk. "There's your culprit," he announced. "A coccobacillary microorganism. It takes an aniline stain and is gram-negative."

"You sound like you are describing a rickettsia?" Toledano said.

"I am. Their blood is teeming with the beasts."

"Typhus?" Jan asked.

"Very much like it. A mutated strain perhaps. And I thought they were immune. We found traces of an organism like this in a number of the blood samples we took. Yet the individuals were healthy. They aren't any more."

Toledano paced back and forth the length of the small room. "It does not make sense," he said. "Typhus and all the related diseases

are vectored by insects, mites, body lice. I have complaints about the EPC, but we *couldn't* have been involved in that way. But there still appears to be a connection. Perhaps in the country through which we drove. We might have picked up something on the way. Yet there has been no sickness among our personnel. We will have to look into this. But getting a cure comes first, top priority. Cure them first and we'll find the source later."

"I have an idea about that—" Jan said, but broke off at the sound of a distant splintering crash followed by screams and shouting. At the same moment the duty lieutenant ran in.

"We're under fire, sir. Steam ballistae, bigger than anything in the city. They must have moved them up as soon as it became dark."

"Can we knock them out without hurting anyone?"

"Negative, sir. They are out of range of gas weapons. We could—"

He never finished the sentence. A crashing roar hammered at their ears, stunning them, and all the lights went out. The floor buckled and Jan found himself hurled down. As he climbed to his feet the beam of the lieutenant's light cut a dust-filled path through the darkness, moved across the sprawled forms and came to rest on the rough slab of stone that had crashed down upon them.

"Dr. Toledano!" someone shouted, and the light came to rest, flickering erratically as though the hand that held it were shaking.

"Nothing, no hope," Pidik said, bending over the small huddled form. "It took half his head away. Dead instantly." He stood and sighed. "I have to get back to the laboratory. I imagine this means you will be taking over, Dr. Dacosta."

He was almost to the entrance before Jan could gather his wits and call after him. "Wait, what do you mean?"

"Just that. You were his assistant. You are career EPC. The rest of us have other things to do."

"He never intended—"

"He never intended to die. He was my friend. Do the sort of job he would have wanted you to do." Then he was gone.

It was too much to accept all at once, but Jan forced himself to act. The chain of command could be straightened out later. Now it was an emergency.

"Have Dr. Toledano's body removed to the hospital," he ordered the lieutenant, and waited until the command had been passed on. "I recall the last thing you said was something about their being out of the range of gas, the things that are firing at us?"

"Yes, sir, they're beyond a ridge of hills."

"Can we locate them exactly?"

"We can. We have artillery

spotters, infra red, camera equipped, miniature copters."

"Send one out. Get the location and range of the emplacement, look for the steam generator. If this weapon is like the ones on the walls—it should be, only bigger—there will be one generator and pipes to the ballistae. Locate this and, with one gun firing, what do you call it—?"

"Ranging in?"

"Exactly. When you have the range blow up the generator. That will stop the firing. You'll kill some people, but there are more being killed right here—including Dr. Toledano."

The officer saluted and left. Jan was suddenly tired and he went to the washroom to put cold water on his face. A brilliant emergency light came on in the room behind him and in the glass over the sink he looked into his own eyes. Had he really issued that order to kill, just like that? He had. For the greater good of course. He looked away from the mirrored eyes and plunged his face into the water.

VI

Dawn was only a few hours away and most of those present had the drawn look of near exhaustion. The ceiling of the office had been patched, a new desk brought in, all signs of damage removed. Jan sat behind the desk, in what had once been Dr. Toledano's chair, and waved the others to seats as they came in.

"It looks like we are all here now," he said. "Dr. Pidik, could you give us the medical situation first?"

"Under control, I'll say that much." The tall epidemiologist rubbed at his unshaven jaw. "We haven't lost any patients yet, supportive treatment seems to be working with even the worst cases. But we can do nothing to stop the spread of the disease. It's absolutely out of control. If it continues at this rate, we are going to have everyone in the city sick and we'll have to call in help to handle them. I've never seen anything like this before in my entire life."

"How does it look from the military point of view, Lieutenant?"

The man, near the end of his strength, lifted his hands and almost gave a shrug for an answer, controlling himself only at the last instant. He pulled himself erect. "We are having less trouble from the populace. All of our men are withdrawn from the streets, and are either on the walls or guarding the camp here. A lot of people are sick, that takes the fight out of them, the rest seem sort of dazed. The enemy outside has been moving into attacking positions and I think we can expect a heavy attack at any time now, probably at dawn."

"What makes you say that?"

"The equipment they've brought

up. More ballistae of all sizes. Steam-powered rams, bridging material, grappling towers. They are ready for a concerted effort, and they have the men and equipment for the job."

"Can you stop the attack when it comes?"

"Not for long, sir. We might with the aid of the people in the city, but they are more than useless. We shall have to guard against them as well. There are just not enough of our troops to man the walls. If you will pardon my suggesting it, we are faced with two possible solutions. One, we can call for more troops. The technicians have set up a transmatter and a larger one can be brought through and assembled. Secondly, we can withdraw. Any defense here will be costly of men—on both sides—and equipment. The Gudaegin are tremendous fighters and never stop unitl they have won."

"If we leave—what happens to the people of the city?"

The lieutenant looked uncomfortable. "It's hard to say, but, I imagine, if they're sick—"

"They will all be killed. I don't think much of that as a solution, Lieutenant. And we can't take them back to base, there isn't room for a city full of sick people. And there are no other quarantine stations that can handle them. The situation is beginning to look a little grim."

Their silence, their downcast expressions, echoed only agreement. There seemed no simple way out of the situation. A number of people were going to die no matter what they decided. These deaths would be a black mark on the record of the EPC. Perhaps another training film would be made about their mistakes, warning others not to repeat them.

"We are not beaten yet," Jan told them, when no one else elected to speak. "I have some other plans that may alter the situation. Carry on as you have been doing and by dawn I will let you know. Lieutenant, if you would remain I would like to talk to you."

Jan waited until the others had filed silently out and the door was closed before he spoke. "I want a volunteer, Lieutenant, a good soldier who is a professional fighting man. I am going outside of the city and I am going to need some skilled help—"

"You can't do that, sir! You're in command."

"Since I am in command—there is nothing to stop me, is there? The mission I have in mind needs a young and fairly expendable medical man, for which I qualify well. The medical teams do not need me now, and you can man the defenses whether I am here or not. If I get into trouble, a call to headquarters can send a more highly qualified EPC man through in a few minutes. So there really is no reason why I should not go, is there?"

The lieutenant reluctantly agreed —although he did not like it—and went out in search of a volunteer. Jan was loading equipment into a pack when there was a knock on the door.

"I was told to report to you, sir," the soldier said, saluting. Jan had seen him before, a big man with a neck like a tree trunk, who nevertheless moved quickly as a cat. He was weighted with combat gear and looked ready for anything.

"What's your name?"

"Plendir, private, EPC Guard, sir."

"Weren't you wearing a sergeant's stripes a few days ago?"

"I was, sir, and not for the first time. Field demotion. Drink and fighting. Not our own men, sir. Locals. About fifteen of them jumped me. Most still in hospital, sir."

"I hope you are as good as you say, Plendir. Ready to go with me outside of the city?"

"Yes, sir." His stony expression did not change.

"Good. But it is not as suicidal as it sounds. We're not going over the wall, but we'll exit by the transmatter we used when we first hit this planet. That should put us some miles behind the enemy troops. I want to capture one of them. Do you think it can be done?"

"Sounds like an interesting job, sir," Plendir said, almost smiling at the thought.

Jan slipped on his pack and they went to the tech section. Bright lights flooded the temporary structure and a generator whined steadily in the background, supplying the operating current for the equipment and for recharging the vehicles' high-density batteries. They stepped over cables and walked around equipment to the familiar slab shape of a personnel transmatter screen.

"Has it been checked out?" Jan asked a passing tech.

"To the last decimal place and locked on frequency, sir."

Jan made a note of the transmatter's code on the inside of his wrist, and Plendir automatically did the same. Until they had the call number memorized they did not want to risk being locked out of the city.

"If I might make a suggestion?" Plendir asked, as Jan punched the code for the other transmatter on the keyboard.

"What is it?"

"We are, so to speak, going into my area of operation now. We have no idea of who or what might be waiting on the other side. I go through first and roll left. You come after me as quickly as you can and dive right. Then we are both through and down low and looking things over."

"Just as you say, Plendir. But we are far enough from the enemy troops so I don't think we have to worry."

The soldier raised his eyebrows slightly, but otherwise did not an-

swer. When the operation light came on he waved Jan forward—then dived head first at the screen. Jan jumped right after him, ready to hit the ground.

Cold air, black night, a sharp explosion and something heavy hitting the ground next to him. Jan dropped, harder than he had planned, driving the air from his lungs. By the time he had gasped and lifted his head to look around the brief battle was over. A man lay on the ground near him, slumped and unconscious, and another was near the crouching Plendir, rolling and moaning softly. A cloud of gas, barely visible in the starlight, was drifting away from three other motionless figures. There was a crackling in the brush that lessened and died away.

"All clear, sir. They were on guard here, but I was maybe expecting them and they weren't expecting me. Not just then, if you know what I mean. That one by you may be dead, couldn't help it —me or him. But this one has a broken wing and the others are gassed. Will any of them do?"

"The wounded one will be best; let me look at him." Jan stood and swung off his pack. "Some of them got away, didn't they?"

"Yes, sir. They'll be bringing back their friends. How long will you need?"

"Fifteen minutes should do it. Think we can manage that much?"

"Probably. But I'll give you all the time I can. Need help with him before I take a look around?"

"Yes, just one second."

The prisoner winced away from the harsh light. Outside of his metal helm he did not look very soldierly, dressed in coarse cloth and half-cured furs. He tried to scrabble away when Jan touched his arm, but the sudden appearance of the point of a trench knife just in front of his eyes changed his mind. Jan was quick. He slipped an inflatable cast over the arm, set the bones through the flexible fabric, then triggered the pressure. It blew up with a quick hiss, holding the broken arm rigid and secure.

"He's not going to like what comes next, so could you tie his wrists and ankles together and roll him onto his side?"

Plendir did this with quick efficiency while Jan spread out the contents of his pack. He had blunt-tipped surgical shears that he used to cut away the prisoner's clothing. The man began to howl and Jan shut him up with a piece of sticking tape over his mouth.

"I'd like to look about, sir," Plendir said, sniffing the air. "It's going to be dawn soon."

"I'm fine here."

The soldier slipped soundlessly away and Jan balanced the light on a rock while he bared the man's not-too-clean back. There was a muffled moan. From his pack Jan

took the thing he put together earlier, a great square made by crisscrossing many lengths of surgical sticking tape. He held the prisoner from moving with his knee while he slapped the square across the man's back. As Jan pressed it into place the man moaned at the cold touch and tried to shiver away. Jan stood, brushing off his knees, and looked at his watch.

Dawn was lightening the east when Plendir reappeared.

"They made good time, sir," he reported. "There must be a camp near here. Anyway a whole gang of them are on the way now."

"How long do we have?"

"Two, maybe three minutes, at the very outside."

Jan looked at his watch. "I need at least three minutes. Can you arrange some kind of holding action?"

"My pleasure," Plendir said, and went off at a trot.

They were very long minutes, with the second hand of the watch moving as though crawling through molasses. There was still a minute to go when there was the sound of distant explosions and shouts.

"Time enough," Jan said, and bent swiftly to tear off the sticking plaster. He did it with a sudden pull, but it took plenty of hair with it and the prisoner writhed in silent agony. Jan stuffed the square into his pack before permitting himself a quick flash of the light.

"Wonderful!" he shouted.

The man's back had a pattern of square red welts, one bigger than the others and so swollen that it projected like an immense boil from his skin.

Plendir came pelting back at a dead run.

"They're right behind me!"

"One second, I need the evidence!"

Jan fumbled out the camera as the soldier spun about and hurled gas grenades back in the direction he had come from. The flash burst out its sudden light and Jan shouted, "Let's go!" Something hissed by his ear.

"Do it—I'm right behind you!"

Jan hit the actuator on the preset controls and jumped into the screen. He hit the floor, skidded and fell, as Plendir came diving through behind him in a neat roll. The bolt from a crossbow followed them and thunked into the wall across the room. Plendir hit the controls and the connection was broken.

"The last shot of the war," Jan said, smiling, looking at the quarrel embedded in the wall. "It should be all over now."

The doctors looked at the blown-up print of the color photograph, then at the square of sticking tape that had been applied to the man's back.

"It seems obvious now by hindsight," Dr. Bucuros reluctantly admitted, as though she were angry

she had not considered the possibility herself.

"Allergy," Dr. Pidik said. "The one thing we never considered. But did you have to be so dramatic about obtaining a subject?"

Jan smiled. "One of the city people might have been all right, but I couldn't be sure. I had to get someone from outside, who had never been in contact with us in any way. The Gudaegin soldier proved ideal as you can see. A reaction to a number of common specimens we have—and one single, massive allergic reaction right there." He tapped the photograph over the swollen red welt.

"What is the allergen?" Dr. Pidik asked.

"Polyster. Our most common plastic. Our clothes are woven out of it, our belts, equipment parts, numberless things. It would be impossible for them *not* to come into contact with it—with disastrous results. You gave me the clue, Dr. Pidik, when you said that a lot of the people here seemed to have the inactive plague microorganisms in their bloodstreams. It reminded me of something. Typhus is one of the few diseases that a person can carry, yet still not be ill himself. Apparently the mutated form of typhus on this planet was very deadly. You either died—or were immune. People who came down with the disease were killed. So the present populace is descended from immune—and infected individuals. All of them."

"And our coming triggered it off," Pidik said.

"Unhappily true. There appears to be a relationship between this polyster allergy and their natural immunity. They first experience a massive allergic reaction. This breaks down their bodies' defenses and produces a synergistic reaction with the typhus, weakening their natural immunity. They get sick."

"But not any more," Pidik said, firmly.

"No, not any more. Now that we know the cause we know the cure. And the first one we are going to cure is Azpi-oyal, our ambassador of good will to his fellow Gudaegin. When he is cured he will believe in the cure. He will see the others treated and recovering. And if there are no more plague victims there is no further cause for war. We can deal with them, make peace, and get out of this tight corner we have maneuvered ourselves into."

There was the sound of distant horns and massed shouting.

"I suggest you hurry," Dr. Bucuros said, turning to leave the room. "We are going to have a hard job of convincing them of anything if we are all dead."

In silent agreement they hurried after her. ■

seed stock

We are four billion years along a particular road of life.
And any other planet's life must be billions of years along another road.
The crossing may not be smooth—

SEED STOCK

FRANK HERBERT

Illustrated by Vincent diFate

When the sun had sunk almost to the edge of the purple ocean, hanging there like a giant orange ball—much larger than the sun of Mother Earth which he remembered with such nostalgia—Kroudar brought his fishermen back to the harbor.

A short man, Kroudar gave the impression of heaviness, but under his shipcloth motley he was as scrawny as any of the others, all bone and stringy muscle. It was the sickness of this planet, the doctors told him. They called it "body burdens," a subtle thing of differences in chemistry, gravity, diurnal periods and even the lack of a tidal moon.

Kroudar's yellow hair, his one good feature, was uncut and contained in a protective square of red cloth. Beneath this was a wide, low forehead, deeply sunken large eyes of a washed-out blue, a crooked nose that was splayed and pushed in, thick lips over large and unevenly spaced yellow teeth, and a melon chin receding into a short, ridged neck.

Dividing his attention between sails and shore, Kroudar steered with one bare foot on the tiller.

They had been all day out in the up-coast current netting the shrimp-like *trodi* which formed the colony's main source of edible protein. There were nine boats and the men in all of them were limp with fatigue, silent, eyes closed or open and staring at nothing.

The evening breeze rippled its dark lines across the harbor, moved the sweat-matted yellow hair on Kroudar's neck. It bellied the shipcloth sails and gave the heavily loaded boats that last necessary surge to carry them up into the strand.

Men moved then. Sails dropped

with a slatting and rasping. Each thing was done with sparse motion in the weighted slowness of their fatigue.

Trodi had been thick in the current out there, and Kroudar had pushed his people to their limit. It had not taken much push. They all understood the need. The swarmings and runnings of useful creatures on this planet had not been clocked with any reliable precision. Things here exhibited strange gaps and breaks in seeming regularity. The *trodi* might vanish at any moment into some unknown place—as they had been known to do before.

The colony had experienced hunger and children crying for food that must be rationed. Men seldom spoke of this any more, but they moved with the certain knowledge of it.

More than three years now, Kroudar thought, as he shouldered a dripping bag of *trodi* and pushed his weary feet through the sand, climbing the beach toward the storage huts and racks where the sea creatures were dried for processing. It had been more than three years since their ship had come down from space.

The colony ship had been constructed as a multiple tool, filled with select human stock, their domestic animals and basic necessities, and it had been sent to plant humans in this far place. It had been designed to land once, then be broken down into useful things.

Somehow, the basic necessities had fallen short, and the colony had been forced to improvise its own tools. They had not really settled here yet, Kroudar realized. More than three years—and three years here were five years of Mother Earth—and they still lived on the edge of extinction. They were trapped here. Yes, that was true. The ship could never be reconstructed. And even if that miracle were accomplished, the fuel did not exist.

The colony was *here*.

And every member knew the predatory truth of their predicament: survival had not been assured. It was known in subtle things to Kroudar's unlettered mind, especially in a fact he observed without being able to explain.

Not one of their number had yet accepted a name for this planet. It was "here" or "this place."

Or even more bitter terms.

Kroudar dumped his sack of *trodi* onto a storage hut porch, mopped his forehead. The joints of his arms and legs ached. His back ached. He could feel the sickness of *this place* in his bowels. Again, he wiped perspiration from his forehead, removed the red cloth he wore to protect his head from that brutal sun.

Yellow hair fell down as he loosed the cloth, and he swung the hair back over his shoulders.

It would be dark very soon.

The red cloth was dirty, he saw. It would require another gentle washing. Kroudar thought it odd, this cloth: grown and woven on Mother Earth, it would end its days on *this place*.

Even as he and the others.

He stared at the cloth for a moment before placing it carefully in a pocket.

All around him, his fishermen were going through the familiar ritual. Brown sacks woven of coarse native roots were dumped dripping onto the storage hut porches. Some of his men leaned then against the porch uprights, some sprawled in the sand.

Kroudar lifted his gaze. Fires behind the bluff above them sent smoke spirals into the darkening sky. Kroudar was suddenly hungry. He thought of Technician Honida up there at the cookfire, their twin sons—two years old next week—nearby at the door of the ship-metal longhouse.

It stirred him to think of Honida. She had chosen *him*. With men from the Scientist class and the Technicians available to her, Honida had reached down into the Labor pool to tap the one they all called "Old Ugly." He wasn't old, Kroudar reminded himself. But he knew the source of the name. *This place* had worked its changes on him with more visible evidence than upon any of the others.

Kroudar held no illusions about why he had been brought on this human migration. It was his muscles and his minimal education. The reason was embodied in that label written down in the ship manifest—laborer. The planners back on Mother Earth had realized there were tasks which required human muscles not inhibited by too much thinking. The *kroudars* landed *here* were not numerous, but they knew each other and they knew themselves for what they were.

There'd even been talk among the higher echelons of not allowing Honida to choose him as mate. Kroudar knew this. He did not resent it particularly. It didn't even bother him that the vote among the biologists—they'd discussed his ugliness at great length, so it was reported—favored Honida's choice on philosophical rather than physical grounds.

Kroudar knew he was ugly.

He knew also that his present hunger was a good sign. A strong desire to see his family grew in him, beginning to ignite his muscles for the climb from the beach. Particularly, he wanted to see his twins, the one yellow-haired like himself, and the other dark as Honida. The other women favored with children looked upon his twins as stunted and sickly, Kroudar knew. The women fussed over diets and went running to the medics almost every day. But as long as Honida did not worry, Kroudar remained calm. Honida, after all, was

a technician, a worker in the hydrophonics gardens.

Kroudar moved his bare feet softly in the sand. Once more, he looked up at the bluff. Along the edge grew scattered native trees. Their thick trunks hugged the ground, gnarled and twisted, supports for bulbous yellow-green leaves that exuded poisonous milky sap in the heat of the day. A few of the surviving Earth-falcons perched in the trees, silent, watchful.

The birds gave Kroudar an odd confidence in his own decisions. For what do the falcons watch, he wondered. It was a question the most exalted of the colony's thinkers had not been able to answer. Search 'copters had been sent out following the falcons. The birds flew offshore in the night, swooped low over the waters, rested occasionally on barren islands, and returned at dawn. The colony command had been unwilling to risk its precious boats in the search, and the mystery of the falcons remained unsolved.

It was doubly a mystery because the other birds had perished or flown off to some unfound place. The doves, the quail—the gamebirds and songbirds—all had vanished. And the domestic chickens had all died, their eggs infertile. Kroudar knew this as a comment by *this place*, a warning for the life that came from Mother Earth.

A few scrawny cattle survived, and several calves had been born *here*. But they moved with a listless gait and there was distressed lowing in the pastures. Looking into their eyes was like looking into open wounds. A few pigs still lived, as listless and sickly as the cattle, and all the wild creatures had strayed off or died.

Except the falcons.

How odd it was, because the people who planned and conceived profound thoughts had held such hopes for *this place*. The survey reports had been exciting. This was a planet without native land animals. It was a planet whose native plants appeared not too different from those of Mother Earth—in some respects. And the sea creatures were primitive by sophisticated evolutionary standards.

Without being able to put it into those beautifully polished phrases which others admired, Kroudar knew where the mistake had been made. Sometimes, you had to search out a problem with your flesh and not with your mind.

He stared around now at the motley rags of his men. They were *his* men. He was the master fishermen, the one who had found the *trodi* and conceived these squat, ugly boats built within the limitations of native woods. The colony was alive now because of his skills with boat and net.

There would be more gaps in the *trodi* runs, though. Kroudar felt

this as an awareness on the edges of his fatigue. There would be unpopular and dangerous things to do then, all necessary because *thinking* had failed. The salmon they had introduced, according to plan, had gone off into the ocean vastness. The flatfish in the colony's holding ponds suffered mysterious attrition. Insects flew away and were never seen again.

There's food here, the biologists argued. Why do they die?

The colony's maize was a sometime thing with strange ears. Wheat came up in scabrous patches. There were no familiar patterns of growth or migration. The colony lived on the thin edge of existence, maintained by protein bulk from the processed *trodi* and vitamins from vegetables grown hydroponically with arduous filtering and adjustment of their water. Breakdown of a single system in the chain could bring disaster.

The giant orange sun showed only a small arc above the sea horizon now, and Kroudar's men were stirring themselves, lifting their tired bodies off the sand, pushing away from the places where they had leaned.

"All right now," Kroudar ordered. "Let's get this food inside on the racks."

"Why?" someone asked from the dusk. "You think the falcons will eat it?"

They all knew the falcons would not eat the *trodi*. Kroudar recognized the objection: it was tiredness of the mind speaking. The shrimp creatures fed only humans —after careful processing to remove dangerous irritants. A falcon might take up a frond-legged *trodi*, but would drop it at the first taste.

What did they eat, those waiting birds?

Falcons knew a thing about *this place* that humans did not know. The birds knew it in their flesh in the way Kroudar sought the knowledge.

Darkness fell, and with a furious clatter, the falcons flew off toward the sea. One of Kroudar's men kindled a torch and, having rested, anxious now to climb the bluff and join their families, the fishermen pitched into the work that must be done. Boats were hauled up on rollers. *Trodi* were spread out in thin layers along racks within the storage huts. Nets were draped on racks to dry.

As he worked, Kroudar wondered about the scientists up there in the shining laboratories. He had the working man's awe of knowledge, a servility in the face of titles and things clearly superior, but he had also the simple man's sure awareness of when superior things failed.

Kroudar was not privy to the high-level conferences in the colony command, but he knew the physical substance of the ideas discussed there. His awareness of failure and

hovering disaster had no sophisticated words or erudition to hold itself dancingly before men's minds, but his knowledge carried its own elegance. He drew on ancient knowledge adjusted subtly to the differences of *this place*. Kroudar had found the *trodi*. Kroudar had organized the methods of capturing them and preserving them. He had no refined labels to explain it, but Kroudar knew himself for what he could do and what he was.

He was the first sea peasant *here*.

Without wasting energy on talk, Kroudar's band finished the work, turned away from the storage huts and plodded up the cliff trail, their course marked by, here and there, men with flaming torches. There were fuzzy orange lights, heavy shadows, inching their way upward in a black world, and they gave heart to Kroudar.

Lingering to the last, he checked the doors of the huts, then followed, hurrying to catch up. The man directly ahead of him on the path carried a torch, native wood soaked in *trodi* oil. It flickered and smoked and gave off poisonous fumes. The light revealed a troglodyte figure, a human clad in patched shipcloth, body too thin, muscles moving on the edge of collapse.

Kroudar sighed.

It was not like this on Mother Earth, he knew. There, the women waited on the strand for their men to return from the sea. Children played among the pebbles. Eager hands helped with the work onshore, spreading the nets, carrying the catch, pulling the boats.

Not *here*.

And the perils *here* were not the perils of Home. Kroudar's boats never strayed out of sight of these cliffs. One boat always carried a technician with a radio for contact with shore. Before its final descent, the colony ship had seeded space with orbiting devices—watchers, guardians against surprises from the weather. The laboriously built fishing fleet always had ample warning of storms. No monster sea creatures had ever been seen in that ocean.

This place lacked the cruel savagery and variety of seas Kroudar had known, but it was nonetheless deadly. He *knew* this.

The women should wait for us on the shore, he thought.

But colony command said the women—and even some of the children—were needed for too many other tasks. Individual plants from home required personal attention. Single wheat stalks were nurtured with tender care. Each orchard tree existed with its own handmaiden, its guardian dryad.

Atop the cliff, the fishermen came in sight of the longhouses, shipmetal *quonsets* named for some far distant place and time in human affairs. Scattered electric lights ringed the town. Many of the unpaved streets wandered off unlit.

There were mechanical sounds here and murmurous voices.

The men scattered to their own affairs now, no longer a band. Kroudar plodded down his street toward the open cook fires in the central plaza. The open fires were a necessity to conserve the more sophisticated energies of the colony. Some looked upon those flames as admission of defeat. Kroudar saw them as victory. It was *native* wood being burned.

Off in the hills beyond the town, he knew, stood the ruins of the wind machines they had built. The storm which had wreaked that destruction had achieved no surprise in its coming, but had left enormous surprise at its power.

For Kroudar, the *thinkers* had begun to diminish in stature then. When native chemistry and water life had wrecked the turbines in the river which emptied into the harbor, those men of knowledge had shrunk even more. Then it was that Kroudar had begun his own search for native foods.

Now, Kroudar heard, native plant life threatened the cooling systems for their atomic generators, defying radiation in a way no life should. Some among the technicians already were fashioning steam engines of materials not intended for such use. Soon, they would have native metals, though —materials to resist the wild etchings and rusts of *this place*.

They might succeed—provided the dragging sickness did not sap them further.

If they survived.

Honida awaited him at the door to their quarters, smiling, graceful. Her dark hair was plaited and wound in rings around her forehead. The brown eyes were alive with welcome. Firelight from the plaza cast a familiar glow across her olive skin. The high cheekbones of her Amerind ancestry, the full lips and proudly hooked nose —all filled him with remembered excitement.

Kroudar wondered if the *planners* had known this thing about her which gave him such warmth—her strength and fecundity. She had chosen *him,* and now she carried more of their children—twins again.

"Ahhh, my fisherman is home," she said, embracing him in the doorway for anyone to see.

They went inside then, closed the door, and she held him with more ardor, stared up into his face which, reflected in her eyes, lost some of its ugliness.

"Honida," he said, unable to find other words.

Presently, he asked about the boys.

"They're asleep," she said, leading him to the crude trestle table he had built for their kitchen.

He nodded. Later, he would go in and stare at his sons. It did not bother him that they slept so much.

He could feel the reasons for this somewhere within himself.

Honida had hot *trodi* soup waiting for him on the table. It was spiced with hydroponic tomatoes and peas and contained other things which he knew she gathered from the land without telling the scientists.

Whatever she put in front of him, Kroudar ate. There was bread tonight with an odd musty flavor which he found pleasant. In the light of the single lamp they were permitted for this room, he stared at a piece of the bread. It was almost purple—like the sea. He chewed it, swallowed.

Honida, watchfully eating across from him, finished her bread and soup, asked: "Do you like the bread?"

"I like it."

"I made it myself in the coals," she said.

He nodded, took another slice.

Honida refilled his soup bowl.

They were privileged, Kroudar realized, to have this privacy for their meals. Many of the others had opted for communal cooking and eating—even among the technicians and higher echelons who possessed more freedom of choice. Honida had seen something about *this place*, though, which required secrecy and going private ways.

Kroudar, hunger satisfied, stared across the table at her. He adored her with a devotion that went far deeper than the excitement of her flesh. He could not say the thing she was, but he knew it. If they were to have a future here, that future was in Honida and the things he might learn, form and construct of himself with his own flesh.

Under the pressure of his eyes, Honida arose, came around the table and began massaging the muscles of his back—the very muscles he used to haul the nets.

"You're tired," she said. "Was it difficult out there today?"

"Hard work," Kroudar said.

He admired the way she spoke. She had many words at her disposal. He had heard her use some of them during colony meetings and during the time of their application for mating choice. She had words for things he did not know, and she knew also when to speak with her body rather than with her mouth. She knew about the muscles of his back.

Kroudar felt such a love for her then that he wondered if it went up through her fingers into her body.

"We filled the boats," he said.

"I was told today that we'll soon need more storage huts," she said. "They're worried about sparing the labor for the building."

"Ten more huts," he said.

She would pass that word along, he knew. Somehow, it would be done. The other technicians listened to Honida. Many among the scientists scoffed at her; it could be heard beneath the blandness of their voices. Perhaps it was be-

cause she had chosen Kroudar for mate. But technicians listened. The huts would be built.

And they would be filled before the *trodi* run stopped.

Kroudar realized then that he knew when the run would stop, not as a date, but almost as a physical thing which he could reach out and touch. He longed for the words to explain this to Honida.

She gave his back a final kneading, sat down beside him and leaned her dark head against his chest. "If you're not too tired," she said, "I have something to show you."

With a feeling of surprise, Kroudar became aware of unspoken excitement in Honida. Was it something about the hydroponic gardens where she worked? His thoughts went immediately to that place upon which the scientists pinned their hopes, the place where they chose the tall plants, the beautiful, engorged with richness from Mother Earth. Had they achieved something important at last? Was there, after all, a clear way to make *this place* arable?

Kroudar was a primitive then wanting his gods redeemed. He found himself full of peasant hopes for the land. Even a sea peasant knew the value of land.

He and Honida had responsibilities, though. He nodded questioningly toward the twins' bedroom.

"I arranged . . ." She gestured toward their neighbor's cubicle. "They will listen."

She had planned this, then. Kroudar stood up, held out his hand for her. "Show me."

They went out into the night. Their town was quieter now; he could hear the distant roistering of the river. For a moment, he thought he heard a cricket, but reason told him it could only be one of the huts cooling in the night. He longed wordlessly for a moon.

Honida had brought one of the rechargeable electric torches, the kind issued to technicians against emergency calls in the night. Seeing that torch, Kroudar sensed a deeper importance in this mysterious thing she wanted to show him. Honida had the peasant's hoarding instinct. She would not waste such a torch.

Instead of leading him toward the green lights and glass roofs of the hydroponic gardens, though, she guided their steps in the opposite direction toward the deep gorge where the river plunged into the harbor.

There were no guards along the footpath, only an occasional stone marker and grotesqueries of native growth. Swiftly, without speaking, she led him to the gorge and the narrow path which he knew went only down to a ledge which jutted into the damp air of the river's spray.

Kroudar found himself trembling with excitement as he followed Honida's shadowy figure,

the firefly darting of her light. It was cold on the ledge and the alien outline of native trees revealed by the torch filled Kroudar with disquiet.

What had Honida discovered—or created?

Condensation dripped from the plants here. The river noise was loud. It was marsh air he breathed, dank and filled with bizarre odors.

Honida stopped, and Kroudar held his breath. He listened. There was only the river.

For a moment, he didn't realize that Honida was directing the orange light of the torch at her discovery. It looked like one of the native plants—a thing with a thick stem crouched low to the land, gnarled and twisted, bulbous yellow-green protrusions set with odd spacing along its length.

Slowly, realization came over him. He recognized a darker tone in the green, the way the leaf structures were joined to the stalk, a bunching of brown-yellow silk drooping from the bulbous protrusions.

"Maize," he whispered.

In a low voice, pitching her explanation to Kroudar's vocabulary, Honida explained what she had done. He saw it in her words, understood why she had done this thing stealthily, here away from the scientists. He took the light from her, crouched, stared with rapt attention. This meant the death of those things the scientists held beautiful. It ended their plan for *this place.*

Kroudar could see his own descendants in this plant. They might develop bulbous heads, hairless, wide thick-lipped mouths. Their skins might become purple. They would be short statured; he knew that.

Honida had assured this—right here on the river-drenched ledge. Instead of selecting seed from the tallest, the straightest stalks, the ones with the longest and most perfect ears—the ones most like those from Mother Earth—she had tested her maize almost to destruction. She had chosen sickly, scrawny plants, ones barely able to produce seed. She had taken only those plants which *this place* influenced most deeply. From these, she had selected finally a strain which lived *here* as native plants lived.

This was *native* maize.

She broke off an ear, peeled back the husk.

There were gaps in the seed rows and, when she squeezed a kernel, the juice ran purple. He recognized the smell of the bread.

Here was the thing the scientists would not admit. They were trying to make *this place* into another Earth. But it was not and it could never be. The falcons had been the first among their creatures to discover this, he suspected.

The statement Honida made here was that she and Kroudar would be short-lived. Their chil-

dren would be sickly by Mother Earth's standards. Their descendants would change in ways that defied the hopes of those who had planned this migration. The scientists would hate this and try to stop it.

This gnarled stalk of maize said the scientists would fail.

For a long while, Kroudar crouched there, staring into the future until the torch began to dim, losing its charge. He aroused himself then, led the way back out of the gorge.

At the top, with the lights of their dying civilization visible across the plain, he stopped, said: "The *trodi* run will stop . . . soon. I will take one boat and . . . friends. We will go out where the falcons go."

It was one of the longest speeches he had ever made.

She took the light from his hand, extinguished it, pressed herself against him.

"What do you think the falcons have found?"

"The seed," he said.

He shook his head. He could not explain it, but the thing was there in his awareness. Everything here exuded poisonous vapors, or juices in which only its own seed could live. Why should the *trodi* or any other sea creature be different? And, with the falcons as evidence, the seed must be slightly less poisonous to the intruders from Mother Earth.

"The boats are slow," she said.

He agreed silently. A storm could trap them too far out for a run to safety. It would be dangerous. But he heard also in her voice that she was not trying to stop him or dissuade him.

"I will take good men," he said.

"How long will you be gone?" Honida asked.

He thought about this for a moment. The rhythms of *this place* were beginning to make themselves known to him. His awareness shaped the journey, the days out, the night search over the water where the falcons were known to sweep in their low gliding runs—then the return.

"Eight days," he said.

"You'll need fine mesh nets," she said. "I'll see to having them made. Perhaps a few technicians, too. I know some who will go with you."

"Eight days," he said, telling her to choose strong men.

"Yes," she said. "Eight days. I'll be waiting on the shore when you return."

He took her hand then and led the way back across the plain. As they walked, he said: "We must name *this place.*"

"When you come back," she said. ■

the reference library

P. Schuyler Miller

THE ANDERSON UNIVERSE

Series stories must be older than writing. Storytellers in the bazaars and taverns of Sumeria recounted the exploits of Gilgamesh, King of Uruk, long before they were impressed on clay tablets. Homer—or other bards of the same name—sang of the adventures of Odysseus before the .Greeks knew how to write.

Such stories fall into two main categories, both well represented in science fiction. There is the string-of-beads pattern—more or less independent exploits of the same character in the manner of Tom Swift or Captain Future. We also have the more thoughtfully constructed series in which the storyteller dips into a fully worked-out imaginary universe. My first memories of this kind of science-fictional universe are Edmond Hamilton's galactic adventure yarns for *Weird Tales*. I think he must have been the first to make consistent use of the new and controversial concept of a fantastically huge universe of "island" galaxies in which intelligent beings in many different shapes evolved and built civilizations, to meet in friendship or in war.

The great "Lensman" series here in Astounding showed us another such universe, a facet at a time. Isaac Asimov's "Foundation" stories . . . James Schmitz's of the Hub worlds and A. Bertram Chandler's of the galactic Rim . . . Fred Saberhagen's chronicles of the Berserker machines . . . we all have our favorites. The greatest in recent years has probably been "Cordwainer Smith's" wonderful construction, but one of the richest and most vivid is the universe in which Poul Anderson sets many of his stories. Two new books take us

into the two major eras of this Anderson universe.

The first era of the Anderson future begins in our own time. Mankind conquers space, spreads out through the Solar System and to the nearer stars, and eventually forms the loosely organized Solar Commonwealth of worlds and peoples. Many single stories fall into this phase of the evolving pattern, but no major series that I recall.

The second phase is the era of the Polesotechnic League—the stories about old Nicholas van Rijn and his young protege, David Falkayn. One of the new books, "Satan's World" (Doubleday; 204 pages; $4.95), is a van Rijn/Falkayn adventure, though not one of the best. Trading empires like van Rijn's have developed over and over again through history, carrying civilization to far places for sound, profitable and nonetheless efficacious reasons.

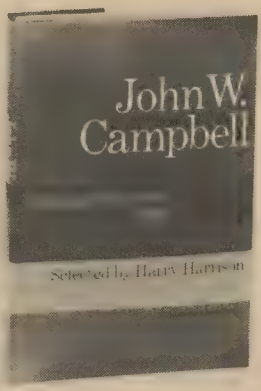
The third phase of the Anderson universe is explained by Navy Intelligence agent Dominick Flandry—surely no stranger to Analog readers—in an introspective moment in the second of the new books, "The Rebel Worlds" (Signet No. T-4041; 141 pp.; 75 cents):

"Our ancestors explored further than we in these years, remember. When hell cut loose and their civilization seemed about to fly into pieces, they patched it together with the Empire. And they made the Empire function. But we . . . we've lost the will. The night is coming—the Long Night, when the Empire goes under and the howling peoples camp in its ruins."

Flandry's purpose in life is to postpone that Long Night of Man.

The era of the Polesotechnic League is one of brash adventure. It has its parallels in American history: the Conquistadors . . . the fur trade . . . the mountain men. Mankind is bursting out into the galaxy, meeting strange beings, making friends with some and eternal enemies of others. Men like Nicholas van Rijn are bigger than the life we know—but there have been men like them. Van Rijn himself is one of Washington Irving's Dutch merchants thrust into the far future, a hybrid of Falstaff and Giles Habibula—neither of whom was a fool.

Lately Poul Anderson has been effectively mixing a kind of hard science into his adventure yarns. The universe is a very strange place, and he is drawing on the latest theories and discoveries of physics and astronomy to show us just how strange it is. In "Satan's World" we have two such bizarre cosmic locales, the roving ice-world of the title and Dathyna, the world of the ruthless Shenna. We see how environment, seen on a cosmic scale, can shape the bodies and natures of races and species . . . as the desert has made the Arabs



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You can now purchase Doubleday's hard-cover collection of some of Analog's best (and most provocative) editorials—"Collected Editorials from Analog." Harry Harrison—who edited the editor this time!—says of them: **"They are idiosyncratic, personal, prejudiced, far-reaching, annoying, sabotaging. They are never, never dull."**

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and Earth has made Man. These are not just stage settings—be clear about that. They are forces that make the story.

"Satan's World" isn't one of the best stories about the Polesotechnic League, nor about van Rijn. "The Rebel Worlds," though, *is* one of the best of the Flandry stories. It seems to show him quite early in his career, still fairly young, not so experienced as we have seen him before, but already haunted by his vision of the Long Night. It gives us the extraordinary tripartite symbiosis of the frontier world, Dido, where mutineers against a vicious and corrupt imperial administrator have taken refuge. It introduces the great love of Flandry's young life—and I'd dearly love to meet both Kathryn McCormac and her rugged husband again when they are all older. And—as Poul Anderson so often does—it digs deep into questions of values, and demonstrates that no important choice is simple or easy to make.

Some day it would be fun to study all of Poul Anderson's stories and find out how long ago he began to have his vision of the evolving Technic Civilization. I suspect it was growing unconsciously long before he gave it a definite shape and began to concern himself with consistency, and that many of his best stories which we think of as non-series really fit

into the overall structure. Maybe he'll do it himself some time, in a preface or an article. Meanwhile, probe for yourselves. You'll find your exploration of the Anderson universe rewarding.

CHARTERS TO THE "HEICON"

If you expect to go to the 28th World Science Fiction Convention in Heidelberg, Germany, next August 21st through 24th, and have already sent the Heicon your membership fee, you can join either of two science-fictional charter flights to the convention—one from the West Coast, one from New York.

Both flights are being arranged by veteran science-fiction writer Alan E. Nourse, who happens to own a travel agency—Tradewinds, of Fall City, Washington 98024. Each plane will hold 183, and the nearer it is filled, the lower the fare will be. It should be less than $200 round trip from New York, less than $300 from California—or whatever the starting point turns out to be. The West Coast flight *may* be able to make pickups in St. Louis, Chicago, et al, for a little extra. Kids as members of a family pay half fare.

Federal regulations say that you can't get the charter rate unless you have been a member of the chartering group—in this case, the World Science-Fiction Convention—at least six months before takeoff. The planes leave California August 7th and New York on August 8th and return September 1st . . . so February 7th was the deadline for joining the Heicon. Sorry—I didn't know about the flight in time to let you join now.

If you are a member and want space on either flight, send a $50 deposit made out to "Tradewinds—Heicon Charter East" or "Tradewinds—Heicon Charter West" to Alan Nourse at the Tradewinds address in Washington, or to his East Coast agent, Donald Lundry, R.D. 1, Old York Estates, Hightstown, New Jersey 08520. It's refundable up to the time the charter contract is signed.

If you haven't joined, but want to attend (Alan may be able to get you a good deal, even if not at the charter price—it's his business now), send your membership fee ($4.00 U.S.) to Mrs. Thea Auler, Heicon 70, D 6272 Niedernhausen, West Germany.

Do not—repeat, NOT—send cash or questions to me. You now know all I know. If I hear of any more charters, I'll pass the word along if there's time for you to take advantage of them.

EIGHT FANTASMS AND MAGICS

By Jack Vance • Macmillan Company, New York • 1969 • 288 pp. • $5.95

There is a long-standing controversy among copywriters over the question: can artists read? It is

pretty well established that they don't. Whoever laid out the cover for this collection called it "a science-fiction adventure," in spite of the title and the jacket blurb. (Jacket copywriters may read, but they usually don't read the book they are describing; this is an exception.)

The eight stories range from very short to almost novella length —what that is, is anyone's guess. They deal with the borderline between solid science fiction and fantasy, where the so-called paranormal phenomena and powers can be and are treated as natural psionic forces. A couple of them are set in Mr. Vance's Earth of the very far future, when men and monsters have become almost as bizarre as in Hodgson's "Night Land."

"The Miracle Workers" (published here in July 1958) is an episode in the future of another planet, where men have landed, nearly wiped out the indigenous First Folk, and gradually developed a feudal—and feuding—society in which forgotten science is considered magic and evolved psionic powers—which we consider magic—are the science of the day. Lord Faide discovers that his jinxmen are still invincible against human beings but helpless against the First Folk and their millennia of symbiosis with nature. But there is an apprentice jinxman who is stubbornly curious about the knobs and dials on the "magical" instruments of bygone times.

"When the Five Moons Rise" is without rationalization and hence really fantasy. When the five moons of a far planet rise together, a bewildered lighthouse keeper can no longer tell what is real and what is hallucination.

"Telek" (here in the January 1952 issue) is a rather conventional story for Vance: a revolt of ordinary people against the arrogant telekinetic master caste. "Noise" is a vignette of a man "going native" by himself on another world. "The New Prime" is one the jacket blurber didn't read all the way through: a series of bizarre events are really problems taken by candidates for Galactic Prime, whose moods and personality will set the tone of human civilizations throughout the universe. (For the same idea treated in a totally different way, see Harlan Ellison's Hugo-winning "Beast That Shouted Love.")

Two stories come from Vance's books about the dying Earth of many millions of years hence, where old science is magic, old magic is science, remembered monsters have been reborn and new ones drawn in from the stars. "Cil" is an adventure of the unfortunate Cugel, hero of "Eyes of the Overworld." "Guyal of Sfere" is one of the tales from "The Dying Earth," the first and better of the two books about this future world.

It is also the better of the two.

Finally, "The Men Return" plays with the concept that pockets of space-time may have different laws of causality, or no causality at all. When the Sun swims into such a region, human civilization crumbles; when it escapes, the men return to a vastly changed world.

If you don't like this kind of thing, stay away from it. If you do, sample Vance: he is a master of the genre.

THE BEST FROM FANTASY AND SCIENCE FICTION: 18th Series

Edited by Edward L. Ferman • Doubleday & Co., Garden City, N.Y. • 1969 • 285 pp. • $4.95

Many science fiction aficionados also enjoy fantasy—both the old-fashioned kind with its roots in mythology and the Eighteenth Century Gothic novels, and the sophisticated modern variety which John Campbell introduced in *Unknown Worlds* so long ago. The one magazine which combines both science fiction and fantasy intelligently and admirably is *Fantasy and Science Fiction.* These annual anthologies give the Analog reader an opportunity to sample the best of both forms. As Anthony Boucher said when he introduced the magazine twenty years ago, "There is no formula" . . . yet a *F&SF* story is almost unmistakable. This year there are fourteen of them, plus five of Gahan Wilson's inimitable cartoons. And this year most of them are science fiction.

There are, by my criteria, only four fantasies, two of them of the *Unknown* type, one borderline, one allegorical. Five, if you want to call J. G. Ballard's "Cloud-Sculptors of Coral D," one of his haunting Vermilion Sands stories, fantasy. I don't. Ed Jesby's "Ogre!" wakes up one of the mythical monsters in our time and finds a job for him, in best *Unknown* style, and Harvey Jacobs' "The Egg of the Glak" describes a zanily surrealistic chase to hatch that marvel from the past. David Redd's "Sundown" tells how the native population of an arctic world—dryads, gnomes, trolls—fight off the incursion of human explorers. And David Bunch, in "That High-Up Blue Day That Saw the Black Sky-Train Come Spinning," to carry off all the children before they can be tainted with adulthood, is indescribable.

William M. Lee's "Sea Home" could very well have appeared here in Analog. It tells of a metamorphosis which occurs in a deep-sea research team. K. M. O'Donnell's much anthologized "Final War" describes a perpetual war, played by rules which society has designed for obscure ends. Robert Sheckley's "The People Trap" shows us another game, played in the hostile, overcrowded metropolis of the future, as its hero strug-

gles to get from New Jersey to the Times Square Land Office, against terrific odds, to win an acre of decaying land in California.

The robots and androids are very much in evidence. In Ron Goulart's "Muscadine" a kooky android author undergoes quite literal disintegration in ways that "Lewis Padgett" would have appreciated. Harry Harrison, no stranger here, has a very short and very unorthodox story in "I Have My Vigil." "I" am a robot—or am I? Lloyd Biggle, Jr., with "In His Own Image," takes us to a remote space station where a religious fanatic has programmed some of his own fanaticism into a robot crew.

By now it should be obvious to any regular SF reader that the mark of a good story is how it is told, not its plot or its gimmick. Leonard Tushnets "Gifts from the Universe" describes a situation in which creatures from Venus, disguised as human beings, are trading for the silver they need to stop an epidemic. He combines it with the very "in" genre of Jewish ethnic humor, and makes it fresh and new. Sonya Dorman, in "Lunatic Assignment," convinces us that society is insane . . . and does it in a unique way. And Vance Aandahl, in "Beyond the Game," has what could be a perfectly straight story about a sensitive, shy boy, faced by the ferocity of a school sports program, who finds a strange way to escape.

It's the best *F&SF* anthology in a long time.

BEYOND THE BEYOND

By Poul Anderson • Signet Books, New York • No. T-3947 • 263 pp. • 75¢

Three of the six novelettes and short stories in this collection were first published here in Analog—"Brake" in 1957, when Analog was still Astounding, and "Day of Burning" (as "Supernova") and "Starfog" in 1967. I've said elsewhere that Poul Anderson's stories are typical of the consistent best in present SF; these demonstrate that fact. They also demonstrate that, though he isn't one of the writers you ordinarily think of as a "hard science" man, he can write some very hard science into some very lively plots . . . and garnish with history, ethology, anthropology, et al for good measure.

You'll remember "Starfog" as a cover story and a scientific puzzle story about a lost planet in the untrackable confusion of a globular cluster, where there are stars wherever you look. The refugees who long ago found a haven there now need help and will get it—if only they can find their way back. "Day of Burning" is another problem story on a cosmic scale: how do you persuade the population of an entire planet that they have to get moving *now*, before their world is destroyed as their sun

goes supernova? And "Brake" has a ship which fights off a takeover attempt, but winds up heading out of the solar system at greater than escape velocity. How would you stop so you can be rescued? This is some of that quantitative science fiction that Hal Clement does so well . . . but Poul tells better stories.

In "Memory," an agent is brain-shaped and sent down to serve as a fifth column on a primitive planet, preparatory to a takeover. Then the personality of Torrek the Harpooner is erased and his own self restored. In "The Sensitive Man" we have another key personality up to his neck in plots and counterplots, but with some unusual abilities that aren't—quite—telepathy. And "The Moonrakers" is a space piracy yarn with a distinct difference, which puts action into interplanetary economics in a way that is purely Andersonian.

CATCH THE STAR WINDS
By A. Bertram Chandler • Lancer Books, New York • No. 74-533 • 222 pp. • 75¢

Would you believe a starship driven by sails, at near-light speeds? That's the oddball *Flying Cloud* whose even odder misadventures make up most of this latest volume in the author's leisurely exploration of the galactic Rim Worlds and the threefold expansion of humanity among the stars. The title story may have been called "Winds of If" in *Amazing Stories*, back in 1963. ("Never before published" means very little on a book cover these days.) The book is rounded out with "Zoological Specimen," a minor non-Rim story from *New Worlds* of 1954 and *Science Fiction Stories* of 1957.

Chandler has been developing his Rim sequence in a good many stories, published over a good many years. I had no idea how many until I looked at his credits in the *MIT Index* for 1951-1965. In the recent Dell paperback, "Spartan Planet," he summed up the three stages of evolution in deep-space flight. The First Expansion took place in what other writers have called "generation ships" with crews rotating in and out of suspended animation and colonists in deep freeze. The Second Expansion to the worlds at the Rim of the galaxy was made by "gaussjammers" with the Ehrenhaft Drive, a kind of magnetic tunneling effect. Most of the earlier Rim stories dealt with the adventures of their crews. Later came the Mannschenn Drive and the "timejammers," which use peculiar time effects to beat the light-speed limitation. And in this yarn a crew of misfits attempt to convert their space clipper into an FTL ship with disastrous results, as they are shunted through alternate universes.

The author is a ship's officer whose knowledge of the micro-society of small ships gives his stories a

special flavor. It is the saving factor in "Zoological Specimen"—shippers' euphemism for a corpse which turns out to be not quite as dead as the authorities hoped.

Some day I hope some fan or fan organization—maybe the vigorous Australian Science Fiction Association in Chandler's home territory—will put together a list of the Rim or "Expansion" stories (since they are not all laid in the Rim Worlds but are all in a consistent future universe—or universes) and try to organize them in some kind of sequence. It should be a lot more fun than working on the "Conan" sword-and-sorcery yarns. Good job for my old age.

A CLUTCH OF CLASSICS

Some of the greatest science fiction of all time back in print in paperback editions.

THE CAVES OF STEEL

By Isaac Asimov • Pyramid Books • No. X-1824 • 189 pp. • 60¢

THE NAKED SUN

By Isaac Asimov • Lancer Books • No. 74-986 • 191 pp. • 75¢

Two different paperback publishers have managed to coordinate and get both of the novels about R. Daneel Olivaw, robot detective, on the shelves at the same time.

LEST DARKNESS FALL

By L. Sprague de Camp • Pyramid Books • No. X-2056 • 174 pp. • 60¢

Next to Wells's "Time Machine," this could be the best time-travel novel ever written. Martin Padway goes back and tries to use his Twentieth Century knowledge to prevent the fall of Rome.

THE MOON MAID

By Edgar Rice Burroughs • Ace Books • No. G-745 • 176 pp. • 50¢

THE MOON MEN

By Edgar Rice Burroughs • Ace Books • No. G-748 • 222 pp. • 50¢

Most readers agree that "The Moon Maid" was Burroughs's best book and best science fiction. Ace broke the book into these two segments, reprinting the original magazine versions of the one long and two short novels in the sequence, which follows a family from our time through twenty-one generations.

THE SPACE DREAMERS

By Arthur C. Clarke • Lancer Books • No. 74-524 • 158 pp. • 75¢

This title conceals Clarke's classic "documentary" of man's first adventure into space, as predicted in 1951 in "Prelude to Space." Events have dated it, but it's still great.

I, ROBOT

By Isaac Asimov • Signet Books • No. P-3540 • 192 pp. • 60¢

And a third publisher gives us the stories, mostly from Astounding, in which the famous Three Laws of Robotics evolved.

BRASS TACKS

Dear Mr. Campbell:

The September issue of Analog was highly enjoyable, particularly your little sub-editorial, "Political Science—Mark II." Consider . . .

Linus Pauling is a Nobel Prize winner—in the physical sciences. This makes him a universally-recognized authority when he says, "Ban the Bomb," "Bury the ABM," or whatever it is he says.

William Shockley is a Nobel Prize winner—in the physical sciences. This makes him nobody, because what he says is contrary to Liberal dogma.

Hurray for the double standard!

CHARLES H. CHANDLER

Oh, but Pauling got a Peace prize too!

Dear Mr. Campbell:

You might be interested to know that "The Andromeda Strain" is *not* the first novel Michael Crichton has written, as P. Schuyler Miller apparently thought in his review of it in the September Analog. Michael Crichton has written six other novels, all under several different pseudonyms. None, however, were science fiction.

I also have found a quote in the Book of the Month Club's News—where Mr. Crichton's novel was offered as a selection—which I think should be of some interest to you:

"People who have read my book, almost to a person, are obsessed with finding how much of it is 'true.' They mean, I think, that they want to know where the solid factual material ends and where the fictional material begins. Normally the interface is clear; I have blurred the interface. As for how much of the book is true, who knows? Perhaps all of it. At any rate, I would not be surprised to have some government type come forward in six months and say to me, That's not how it happened at all. It happened *this* way . . .'"

CY CHAUVIN

17829 Peters
Roseville, Michigan

Schuy Miller slipped in not saying "his first science fiction novel."

That "interface" is one of these indefinable things; it depends on when you ask! I wrote stories of men walking on the Moon; were they—are they—true?

Dear John:

Due to the proverbial circumstances beyond my control I have only just come across Mr. Cartmill's gripe—Brass Tacks—June. He raises at least two points that will stand further discussion. One, that s-f writers tend to take more liberties in the biological sciences than elsewhere is, I think, more

due to his discriminating eye than our deficiency. He is obviously very familiar with the fine detail in this field, and so would tend to catch errors more readily. That's just my opinion. But when he takes pointed and detailed exception to my assumption that alien humanoids would be genetically compatible with us . . . that is just *his* opinion. I, too, have hackles, and I am particularly irritated by his blithe assumption that I just threw in that last line or so to round out a story, without having thought about it a lot. I'm sure you know, and I know it's true for other writers, that an awful lot of homework is done that never shows in the actual wordage of a yarn. But let's be specific.

He seems to be saying "This is impossible, so please invent an explanation to cover it." I admit there was no explanation given; it wasn't that kind of story. But an explanation is available, and it doesn't have to be an "invented" one, either. In fact this is something that could interest quite a lot of other people, and I hope some of them will feel inclined to ventilate an opinion to compare with mine. It goes this way.

Scientists are grabbing eagerly for hunks of genuine Moon-rock; they scan the latest probe-data from Mars; they dig into meteorites and analyze them; they are looking for signs of "life as we know it." This is usually regarded as an exclusive term, because it makes the very proper assumption that there may be other forms of life utterly new and alien to us. But it is also an inclusive term, and it's worth thinking on. It includes a fantastic spread of living things, all the way from the tiniest airborne bacterium to the galloping elephant, or the even more massive Blue whale. This Earth of ours teems with life no matter where we look, over a tremendous range of conditions. And yet . . . isn't it odd . . . all living things, without any exception whatever, are based on the same small handful of molecules and chemicals. That invites either of two guesses. (1) That this was the winning combination. (2) That this is the *only* combination that will work, in these conditions. I prefer the second. Think of that exclusive/inclusive phrase again. We assume there could be other forms of life. That seems highly possible. Yet we can't find any, at all, here. Now, if it had been a winning combination, surely we would have found some suppressed examples of the second and third runners? We find degrees of success on other levels. But in this case, no, only the one combination, without exception. So I favor the notion that this is the only one that will work, in these conditions—the one right answer.

But not just on Earth. That would be too exclusive. Cosmolo-

gists tell us there are millions of stars like our sun, and that the chances are better than good that there are plenty of planets just like ours. So it follows that under similar circumstances the same combination will work. Chemistry is chemistry, physics is physics, no matter where. (Isn't that why there's all the fuss about pulsars, because they can't be explained in terms we know have to be met? And when, if ever, they are explained, I doubt if anyone expects the whole of physics to be overthrown.

So, under similar circumstances, in a similar chemistry and physics, the same set of building bricks will work in the same way. Which is all right, so far. But why stop there?

Many years ago now, Julian Huxley published an essay entitled "The Uniqueness of Man" in which he achieved, convincingly, something he possibly never intended. He showed, in detail, that we humans are here at the top of the evolutionary tree . . . just now, anyway . . . not by some fluke, or by Cosmic intervention . . . but simply because we happen to be the right design to make it. (The essay first appeared in *Yale Review*, and was issued in a Collection, by Harper, "Man Stands Alone, 1941".) This is again, the one-right-answer idea. Fantastically unlikely? Is it? Do we have a scale to measure unlikeliness? Life itself is a highly unlikely phenomenon, when you stop to think about it. There is a wealth of evidence to support the idea that evolution will try just about anything, but has a rough way of awarding the final prizes. There is also evidence that certain problems can only be solved in certain ways. Wingfeathers are wingfeathers, no matter what kind of bird grows them, because the laws of aerodynamics won't work otherwise. Bountiful nature invented monkeys twice, in the Old World and the New, but neither got very much further than that.

The way fossil bones are coming in, from Olduvai and other places, it seems apparent that even at the proto-human stage there were several test-models, but we are the only ones who made it. If Mr. Cartmill wants to believe it impossibly unlikely that life could climb exactly the same arduous ladder on some other planet, that is his privilege. But it will be his turn to explain something to me. As of this moment there are almost three billion of us humans on this planet. We come in a wide variety of shapes and sizes, in almost all colors, and we live and die under an astonishing range of conditions, some of them almost unbelievable. And yet we are all indisputably human . . . the same species . . . capable of interbreeding, with fer-

tile offspring as the result. Now, either we all came from one original breeding stock, one small tribe, even one pair . . . which may be acceptable in theology but highly arguable anywhere else . . . or Mr. Cartmill is going to have to admit that this model arose at several different places, under various and different conditions, and at widely different times. And yet identical enough to be genetically compatible? How unlikely can you get? And yet, there it is. No "explaining" needed.

There is just one small additional point, again an opinion. If, on the evolutionary tree on some other planet, circumstances were such as to divert the design in some other direction, the final result would be totally different from us, not some "humanoid" modification. That's not the way the one-right-answer thing works. So when—not "if"—the first alien ship sets down on this uneasy planet of ours, the creature that steps out will be either something unlike anything we have ever seen, or he will be human, right down to the last kink in his DNA chain. My opinion. I'd like to hear others on this.

JOHN T. PHILLIFENT

O.K. boys—have at him!

Dear Mr. Campbell:

I was very interested in the article, "The Big Boosters of the U.S.S.R.," by G. Harry Stine, in the September issue. I have been interested in the Russian's space program for a few years, and would like to make a few comments and ask some questions.

First, the theory that the first Sputniks were orbited by the "ALV" has a few faults. Sputnik 1's last stage was 65 feet long. Too short for the ICBM's core stage, but just right for the SHYSTER SS-3 medium range ballistic missile. In fact, the Russians have exhibited a research version of the SS-3 as a launch vehicle at their Cosmos Pavilion in Moscow. An old report which suggested a "T-2" two-stage missile with a Sylvester —or T-1 Sibling, which is only 50 feet, though second-stage sounds attractive. Also, the Soviets told the IGY in June 1957 that the Sputnik and its rocket were ready for launch "within months" (Nesmeyanov, President of the Academy of Sciences, made the announcement). In September—I think—the Soviets announced a successful series of ICBM tests. I believe that the missile in question was the "A". If so, this would make its launching of Sputnik seem even less likely.

Sputnik 2's final stage was not the Core vehicle either. Radar observations placed its size at 50 x 6 feet, about that of the T-1 Sibling—called the "Victory" in Russia. Visual observations, however, brought an estimate of 79+5 feet, this figure being derived from two different stations. The pictures

taken do resemble the ALV core section, though. And for confusion's sake, the figure of 19 feet, which was widely circulated at the time. I don't understand it either.

Sputnik 3, on the other hand, was definitely raised by ALV. They released a photo of the Nosecone.

The estimate for the escape payload of the A-2LV was slightly low. Considering the Luna probes, it should be at least 4,000 pounds.

For the most part, the background of the Russian's launch vehicles is more muddled than its future. Why don't the thrust figures given for the engines of the A-ILV equal the total figure given to the IAF in 1961 (1,320,000 pounds)? This would also hold true for the A-2LV, of over 1.4 million pounds total thrust, and seven engines in all. What about the forgotten missiles?

The Sasin SS-8 ICBM was supposed, at one time, to be the basis for the Proton (DLV) booster. Could it be the early model ICBM T3, with 550,000 odd-pounds thrust? Whatever happened to that stage and a half KBM Donald Ritchie evaluated back in '62? Is it coincidence that it shares a common shape —a cylinder cone— with the ALV strap ons? Can anybody reading this letter help? My main problem is, while the Soviets do release much information a lot of it—such as the photo of the 1967 Cosmonauts party—receives little distribution in this country. I would appreciate any help I could get on this subject.

GARY ROBERTSON
SP 4 227-70-3177
Can anyone help this reader?

Dear Sir:

Having been a court reporter for many years, I was amused at your little item in the November issue on the subtlety of our language, especially since I know a judge who often uses "fulsome" as you suggest.

However, perhaps English is even subtler than you think, for I shall never forget how my very good high school English teacher stressed the fact that "neither" is always singular, meaning "not either." This is the way my unabridged Merriam's uses it, too, although it carries the added statement, "sometimes construed as plural, not any."

I really think you should have said, "Neither word means what most people think it does!" So let me throw a limerick at you:

Were our editors mumsy or worse,
Ignorant of English uncherce?
For to make *neither* plural
Is beyond my endural
and most singular use in reverse!

Stephen S. MAXSON
8100 Rycroft Avenue
New Carrollton, Md. 20784
My use of "neither" was singular—it was ellipsis for "neither one of the two words".

FILTERED NEWS
continued from page 7

port the news meaningfully? That becomes a matter of realizing that there's so much going on in this world that it's physically impossible to report all of it, so that some selection must be made—that only the more significant and meaningful items can be covered. And the reporter, who is an honest believer in an ideal-theory, will not be conscious of the bias in his selection of meaningful news—of what is "fit to print."

This is not fraud, nor is it a conspiracy of silence, nor is it "censorship" in any normal sense. It's reporting "the truth, the whole truth, and nothing but the truth, so far as I can see it, and within the limits of physical possibility."

Herein lies the error in Vice President Agnew's attacks on TV and newspapers; this weighing of the news *is not due to high-level editorial policy*.

At the editorial level, where the final winnowing of news reports is carried out, the only reports there are to select from are the ones the men on the scenes have sent in. The editors themselves are getting filtered news.

The result is *not* due to merger-ownership of all the news channels in Washington, or any effort of the New York *Times* to destroy its competitors in New York City.

In New York City, the competition newspapers were "censored" out of business by the intransigence of the press unions. The *Times* is, and for many years has been, a Liberal-Democratic journal; it happens that all the conservative opposition was destroyed by Union demands. This wasn't a deliberate political move; the *Times* had an advantage in that New York, like most big cities, tends strongly to the Liberal-Democratic side, so that while it wasn't a deliberate political move, it was a political result.

The major factor of news filtration is that the nation's schools of journalism are almost universally dominated by a Liberal philosophy —which makes it almost impossible for a news medium to gather a truly balanced news staff. The supply of young reporters with a conservative orientation is minuscule; moreover, such youngsters, joining a staff already dominated by Liberal-oriented reporters, will find they do not get along well with their seniors, and their stories are the ones most frequently squeezed out by the press of "more significant" news.

Note carefully: This is *not* conscious or deliberate censorship, nor plotted distortion of the news; it's a senior desk man exercising his honest judgment as he sees it on the plethora of news stories coming in to him. He is, he knows,

training the cub in the important work of judging what is significant and worthy of inclusion.

And the cub either learns, or drifts into some other kind of work.

At no point is there any conscious or deliberate effort to censor or bias the news; it just happens because the dominant philosophy at the reportorial level, and the lower executive levels, is consistently Liberal.

I am *not* inveighing against being Liberal—I am not suggesting that being a Liberal is either wrong or destructive in and of itself.

But I am saying that Spiro Agnew is correct in saying that the American public gets a filtered and unbalanced diet of news.

Having two opposing viewpoints on the "truth" of a proposition makes things harder to understand and decide than if only one, clear-cut story is presented. In many an argument I've been told, "You're just trying to confuse things!" when the fact is that I'm trying to point out that *things are confused.*

Naturally, one-sided news is more understandable, clearer, and more satisfying.

But it makes for a type of censorship of the press that no nation can tolerate for long without internal disaster.

Let's take an extreme example of what this type of press news-filtering could mean. Assume that, somehow, over a period of twenty years or so, secret Nazi-minded men infiltrated the reporting staffs of the major news media. They never lie; they never completely suppress important stories—they simply shift the emphasis of the stories that they allow to appear.

If no opposition Liberal viewpoints could filter through, save in subtly twisted fashion, the American people would never know that the total meaning of the events around them was being filtered.

And note how wrong Agnew's charge that *management* was responsible for the filtering would be! Management level news people do not get out in the field and gather all the stories; they get only the filtered results. They're *management* not leg men, and they haven't a fraction of the time necessary to do the leg work required.

The presidents and vice presidents of the TV networks have every right to react resentfully at Agnew's charge that they are biasing the news. *They* aren't; they don't have the opportunity, because it's been done before the news reaches them.

Agnew, on the other hand, represents the management level of an entirely independent news-gathering organization, with leg men all over the world, that's as extensive and competent as any news-media's staff.

And from Agnew's reactions, it's fair to conclude that the reports reaching him do *not* match the reports reaching the public.

Finally, Agnew commented that many times the bias in the news was "no more than" a lifted eyebrow, or a grin on the face of the TV news commentator. This sort of thing, reminds me of the time a respected Boston preacher—who was widely known for his intense dislike of the then-governor of the Commonwealth—read the annual Thanksgiving Proclamation from the pulpit. In the traditional manner, the Proclamation wound up with the Governor's signature, and the traditional "God Save the Commonwealth."

But the tone of voice which the good preacher used turned "John R. Smith, Governor? God Save the Commonwealth!" into a shocked prayer to save the beleaguered Commonwealth from such a governor.

Try asking someone what the word "Yes," means; when he answers that it means agreement, just reply "Oooh . . . yes?"

Tone of voice and a lifted eyebrow cannot be brought into court and proven in any legal sense. But a mere shift of intonation and tone can make "Oh, yes!" into the statement "You're a damned liar and we both know it!"

There's also the more open loading of news by using semantically highly charged terms. The commonest example is to term any opposition to a Civil Rights movement "White backlash," without further analysis. On one occasion that "White backlash" happened to be a strong, and vocal opposition by Alaskan Eskimos, which fact seemed to the reporters on several newspapers quite an insignificant detail.

Yet even this is not a conscious, planned effort to distort the news; it's the effect of the reporter's personal philosophical orientation as to what he sees. Like the hypothetical mathematician in my example above, he believes he truly reports objective facts.

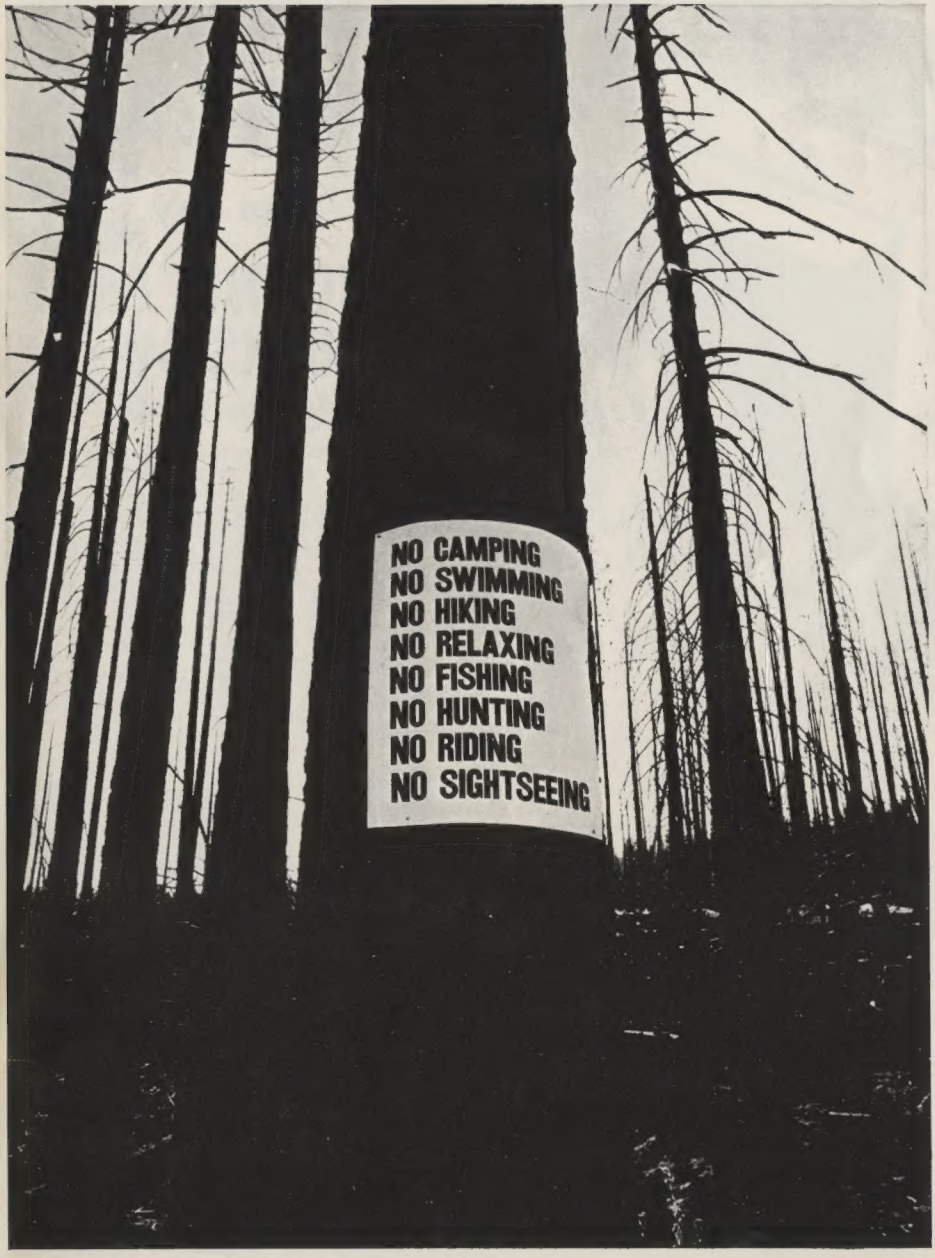
Spiro Agnew wrongly blamed the situation on management—and Agnew was, actually, oversimplifying the problem. If it were due to management policies, it would be relatively easily cured. Break up the management, unmerge the mergers, as the great trust-busting activities of the beginning of the century did with the oil companies.

But just as changing the oil-company management didn't alter the quality of oil the production employees turned out—altering the management of the news media won't alter the filtered news the reporters turn out.

That will require a change in the philosophy of the schools of journalism throughout the country—a recognition that the Liberal philosophy is *not* the *only* decent, humane, honest, and sincere philosophy possible.

And that, my friends, is a damn sight harder than merely forcing a change of management. ■

THE EDITOR



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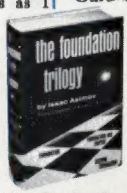

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